BASELINE CULTURAL RESOURCE REPORT

FOR ALTERNATE DAM SITES

ON THE LOWER KOOTENAI RIVER

HYDROELECTRIC PROJECT

by

Carl M. Davis

Archaeologist

Facility Siting Division

Department of Natural Resources and Conservation

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for

NORTHERN LIGHTS INC.

SANDPOINT, IDAHO

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Introduction

This report describes the cultural resource base for each of Northern Light's alternative dam sites. The study was initiated in compliance with the Montana Major Facility Siting Act to gather baseline data concerning the archaeological and historical resources which would be affected by dam construction and operation at the alternate sites.

This assessment is consistent with other reconnaissance level alternative site studies being conducted by Northern Lights, Inc. and the Department of Natural Resources and Conservation (DNRC) under the requirements of the Major Facility Siting Act. As such, this report reflects a preliminary cultural resource reconnaissance. Cultural resource inventories are complete at Kootenai Falls but not at the alternative sites downstream. Federal law would require an intensive on-the-ground cultural resource inventory if the applicant requested a federal license for any of the alternative sites.

The three alternatives (Fig. 1) under consideration were identified and evaluated by HARZA Engineering Company for Northern Lights in the summer of 1980 (HARZA Engineering Company 1980). These data were provided at the request of DNRC. As first conceived, the alternative site study was based on the potential Kootenai River dam sites listed in Exhibit W of the Application for License Northern Lights submitted to the Federal Energy Regulatory Commission (FERC). DNRC considered some of the data in the application to be inadequate, and consequently requested additional information, such as pool levels. Prior to receiving these additional data from Northern Lights, DNRC continued its cultural resource assessment of the altenative sites specified in the FERC application.

Some changes in DNRC's alternative site review became necessary as a result of the alternative site report completed in December 1980 by HARZA Engineering

SITE	NORMAL RESERVOIR ELEVATION (ft.)	GROSS HEAD DEVELOPED (ft.)	POWER RATING MW	MEAN ANNUAL ENERGY PRODUCTION MWH	COST MILLIONS $
*Preferred Alternative					
Kootenai Falls	2000	89-106	144	515,000	$232
I. Single Dam Alternative Project					
Katka	1862	81	138	546,000	$382
II. Two Dam Alternative Project					
Katka	1817	36	50	214,000	$280
Rocky Creek	1868	51	80	327,000	$195
Total		87	130	541,000	$475
III. Kootenai Falls Project Lowered in Elevation and Rocky Creek					
Kootenai Falls	1990	79-96	125	449,000	$225
Rocky Creek	1857	40	59	246,000	$166
Total		119-136	184	695,000	$391

Fig. 1 Kootenai River Hydroelectric Project Preferred and Alternate Dam Projects

for Northern Lights. HARZA's report suggests some alternative sites not listed in the FERC application and drops some that were listed. Consequently, the portion of the DNRC analysis dealing with sites no longer under consideration had to be disregarded and the "new" sites (or site combinations) had to be re-assessed. HARZA Engineering's report contains the applicant's final alternative site selections.

The three alternatives to the proposed Kootenai River hydroelectric project discussed in this report are designated Alternate Projects I, II and III, following HARZA's (1980) format. The sites of these projects are shown in Figures 6, 8 and 9. Alternate Project I would entail construction of the "High Katka Dam" near Katka, Idaho. Pool elevation of this project would be 1862 feet above mean sea level (MSL). Project II would include construction of two dams, the "Low Katka Dam" at the same site as High Katka, but with a pool elevation of 1817 feet, and the Rocky Creek Dam with a pool elevation of 1868 feet. Alternate Project III would be another two-dam alternative, with "Low Kootenai Falls Dam" and a pool elevation of 1990 feet replacing the proposed Kootenai River hydroelectric project, and a "Low Rocky Creek Dam" and its pool at 1857 feet replacing the higher Rocky Creek alternative.

DNRC proposed to conduct a preliminary archaeological reconnaissance and a sample survey of selected areas within each alternative site in early fall of 1980. This is standard archaeological procedure for cultural resource evaluation of this type.

Because of the difficulty of gaining access to private land, DNRC decided to conduct the reconnaissance and survey on Kootenai and Kaniksu National Forest land within the boundaries of the areas that could be affected by dams at the alternative sites. However, DNRC was not able to obtain the required Federal Antiquities Permit from the United States Forest Service because of objections raised by the Kutenai Indians. Therefore, instead of relying on data gathered

in a field survey, DNRC decided to use previously collected site location data, and to extrapolate archaeological data from elsewhere on the Kootenai River.

Geography and Physiography

The Kootenai region (Figure 2) belongs to Fenneman's (1931) Northern Rocky Mountain Physiographic Province and is characterized by a series of forested, north-south oriented mountain ranges. The deep, intervening valleys are part of the upper Columbia River watershed which drains such tributaries as the Kootenai River. The Kootenai region shares strong prehistoric cultural affinities with the Columbia Plateau farther west and with the more recent prehistoric cultures of the Missouri River basin to the east (Roll 1980). Most of the archaeological research in the Kootenai drainage has been concerned with determining the cultural relationship of prehistoric Kootenai residents to the Columbia and Missour River cultures.

Geologically, the region is underlain by Precambrian metasediments of the Belt Supergroup (Johns 1970). This formation is of interest since it provided native sources of argillite, quartzite and siltite which the aboriginal people of the river valley used to make chipped stone tools. Some soft metasandstones were used to make tobacco smoking pipes. Pipe Creek, near Libby, derives its name from aboriginal quarries along the stream channel.

The Kootenai-Flathead region bears the scars of the last glacial period called the Wisconsin (Johns 1970). Evidence of earlier massive glaciations was mostly removed by this final advance. During the maximum extent of the Wisconsin glaciation, the East Kootenai Glacier extended down the Kootenai River Valley, up the Fisher River Valley, and down Pipe Creek past Libby (Alden 1953). The last vigorous advance of the Wisconsin ice sheets (ca 35,000 B.P.), called the Purcell Lobe, dammed the Clark Fork River creating Glacial Lake Missoula. Finely laminated siltbeds suggest the Kootenai River Valley also was subject to

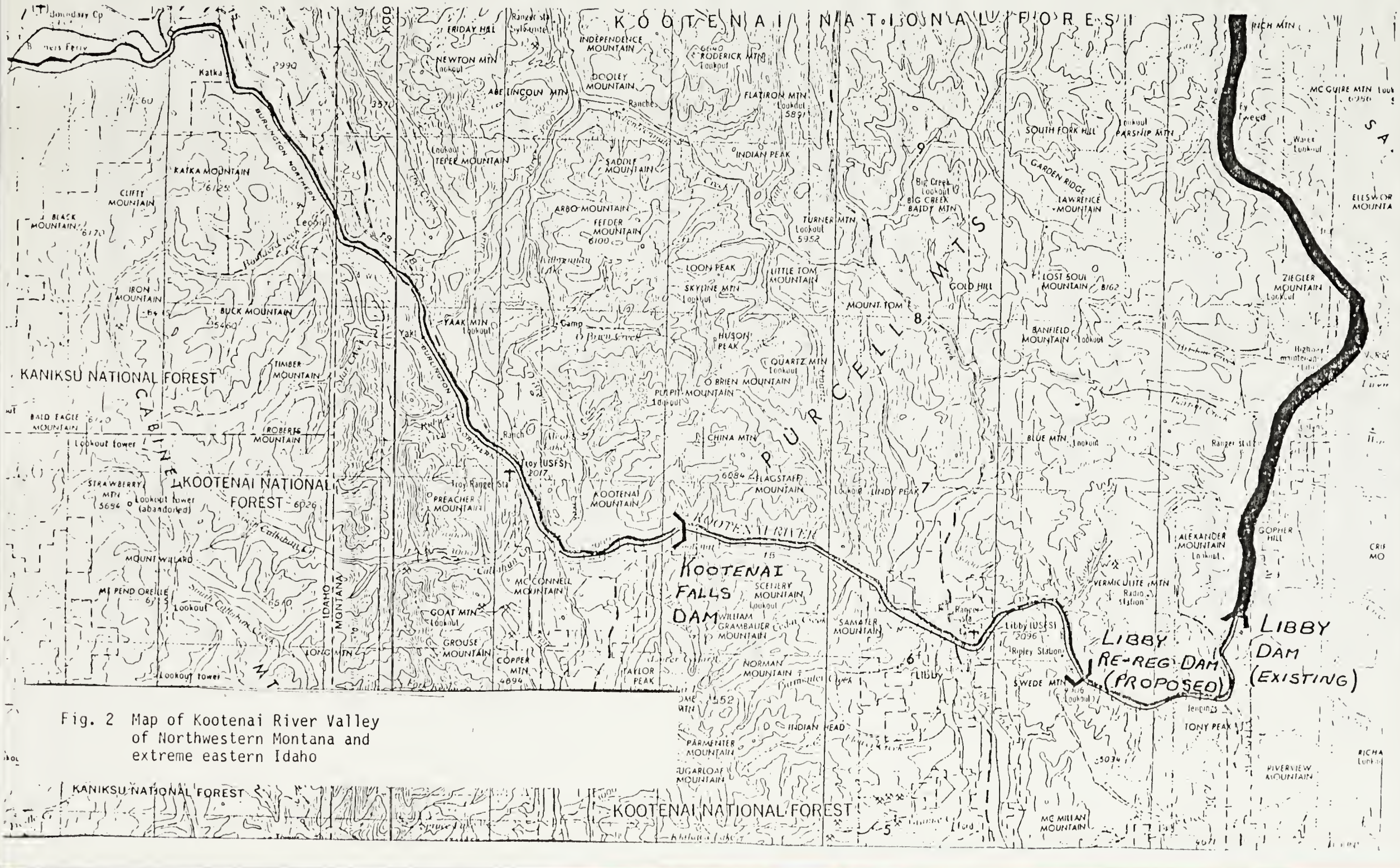


Fig. 2 Map of Kootenai River Valley of Northwestern Montana and extreme eastern Idaho

periodic glacial ponding forming the fluctuating Glacial Lake Kootenai. The extent of Glacial Lake Kootenai, the length of its duration and when it drained for the last time are all unknown. It also is not known with certainty when the area became suitable for plants and animals following the retreat of the ice. Based on pollen profiles from Hager Pond in Idaho, it appears reasonable to conclude that the Kootenai region reached Holocene conditions by around 8000 B.C. (Roll 1981). The later Holocene geomorphology of the Kootenai drainage is largely the product of post-glacial fluvial processes. The effects of these processes on the archaeological record have yet to be adequately studied.

Ash layers found in the Kootenai River Valley have been tentatively associated with known volcanic eruptions (CRC 1980, Choquette and Holstine 1980). While it is highly likely that some of the ash horizons observed throughout the Kootenai resulted from the well-known Mt. Mazama (Ca. 6700 B.P) and Glacier Peak (Ca. 12,000 B.P.) ash falls, these ash layers must be positively identified before they can be useful in the determination of any geological or cultural chronology, and interpretations developed on the basis of ash layers of uncertain age can only be tentative.

The Kootenai River valley (Figure 3) is predominately an alluvial river system. However, on several sections of the river in Montana and eastern Idaho, such as at Kootenai Falls and from the Yaak confluence to the Katka alternative site, the river channel morphology is largely bedrock controlled (Dalby 1981). In these areas there is little alluvial floodplain and few river terraces on which aboriginal people could camp. Erosion has long since obliterated most of the Pleistocene river terraces, along with whatever evidence there might have been of ancient (early Holocene) campsites. The situation appears reversed on areas of the river less controlled by bedrock and more affected by fluvial processes. Broader floodplains have developed and many of the older river terraces once occupied by aboriginal humans are still preserved, for example,

Figure 3

The river profiles show the differences in river channel morphology within the Kootenai River Valley at the locations under discussion in this report. The profiles also illustrate the river terraces systems on which various archaeological research has been focused and how intensively they were surveyed. At a reconnaissance level the areas were spot-checked at intervals; at a project level the areas were thoroughly inventoried for cultural resources. The profiles are not drawn to scale in order to illustrate the river bank morphology which would be either grossly exaggerated or poorly shown if drawn to scale from the available 1:24000 scale topographic maps. Each site is summarized below.

A.1. 2000-2200' terrace: The River Basin Survey, in 1950, briefly examined the area. In 1967-68, Taylor's crew inventoried the low elevations. At this time the survey was considered of project level intensity.
220-2490' terrace: The River Basin survey briefly examined these higher terraces--largely unsuccessfully because of thick vegetation. Taylor like-wise examined the higher-floodpool boundaries with limited success but at a project level intensity.
Munsell examined higher terraces in 1975 after flooding from Libby Dam. Shoreline erosion revealed sites not previously detected. Jermann & Aaberg examined these same terraces in 1976 and based their predictive model on these samples.

A.2. 2000-2200'--The River Basin Survey briefly examined the area in 1950. Munsell examined the area in 1975, and the University of Idaho finished the Survey in 1976-78. Their investigations are being completed by Montana State University under the direction of Tom Roll. The site density estimates from this well-known area are used as the basis for site predictions within the alternatives.

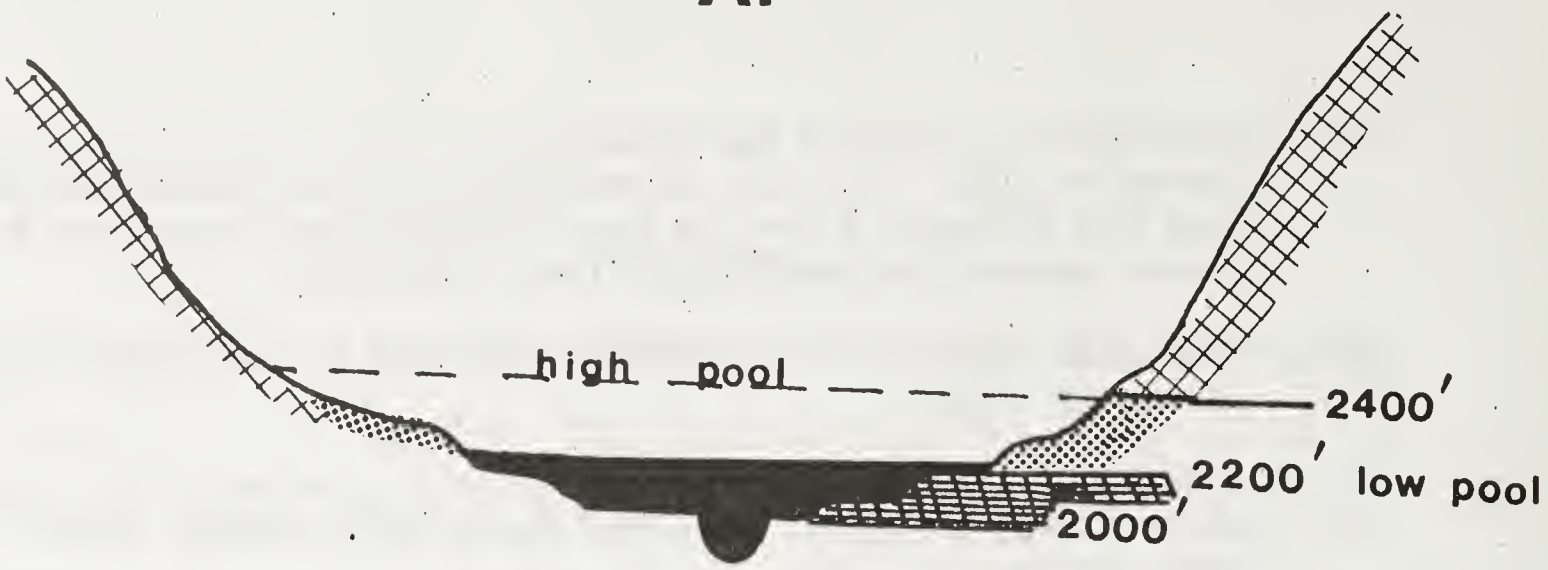
A.3. 2000-2200'--The Kootenai Falls area was surveyed by the Forest Service in 1978 and 1979. The area was briefly explored by the River Basin Survey. Cultural Resource Consultants further surveyed adjacent lands within the proposed Kootenai River Hydroelectric Project from 1978 to 1980.

B.1. 1800-2000'-- The area was briefly explored by the River Basin Survey in 1950. The area surrounding the confluence of the Yaak and Kootenai River has been intermittantly surveyed by Forest Service Archaeologists from 1976-1979.

B.2. 1800-2000'--The area was briefly explored by the River Basin Survey in 1950.

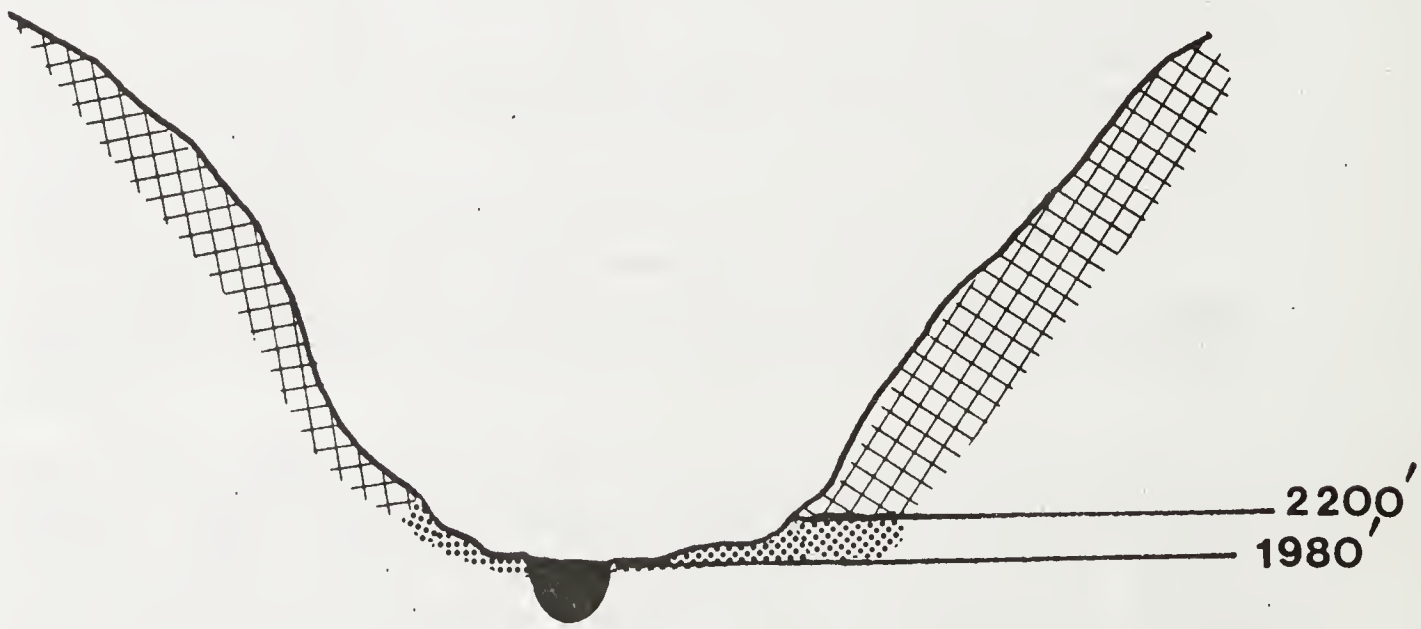
B.3. 1800-2000'--The Katka Gorge was briefly surveyed by the River Basin Survey in 1950. Note the constricted nature of the river valley.

A.



1. LAKE KOOCANUSA

2. LIBBY - JENNINGS ARCHAEOLOGICAL DISTRICT



3. KOOTENAI FALLS

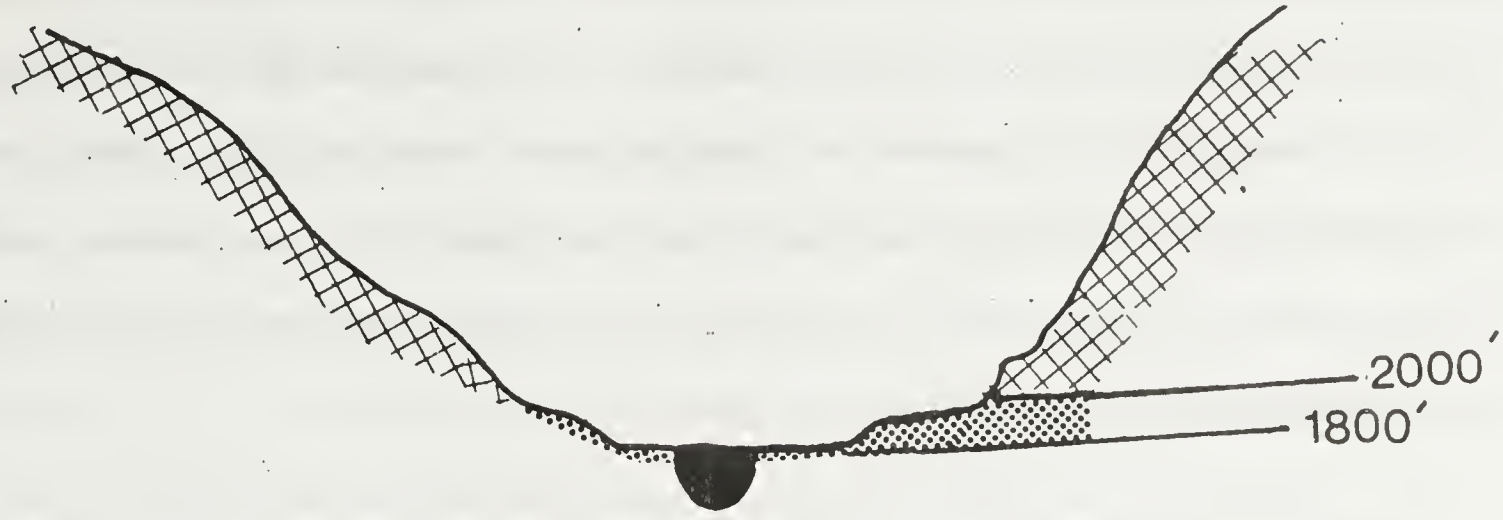
2200′ – terrace systems

– archaeologically investigated areas (project level)

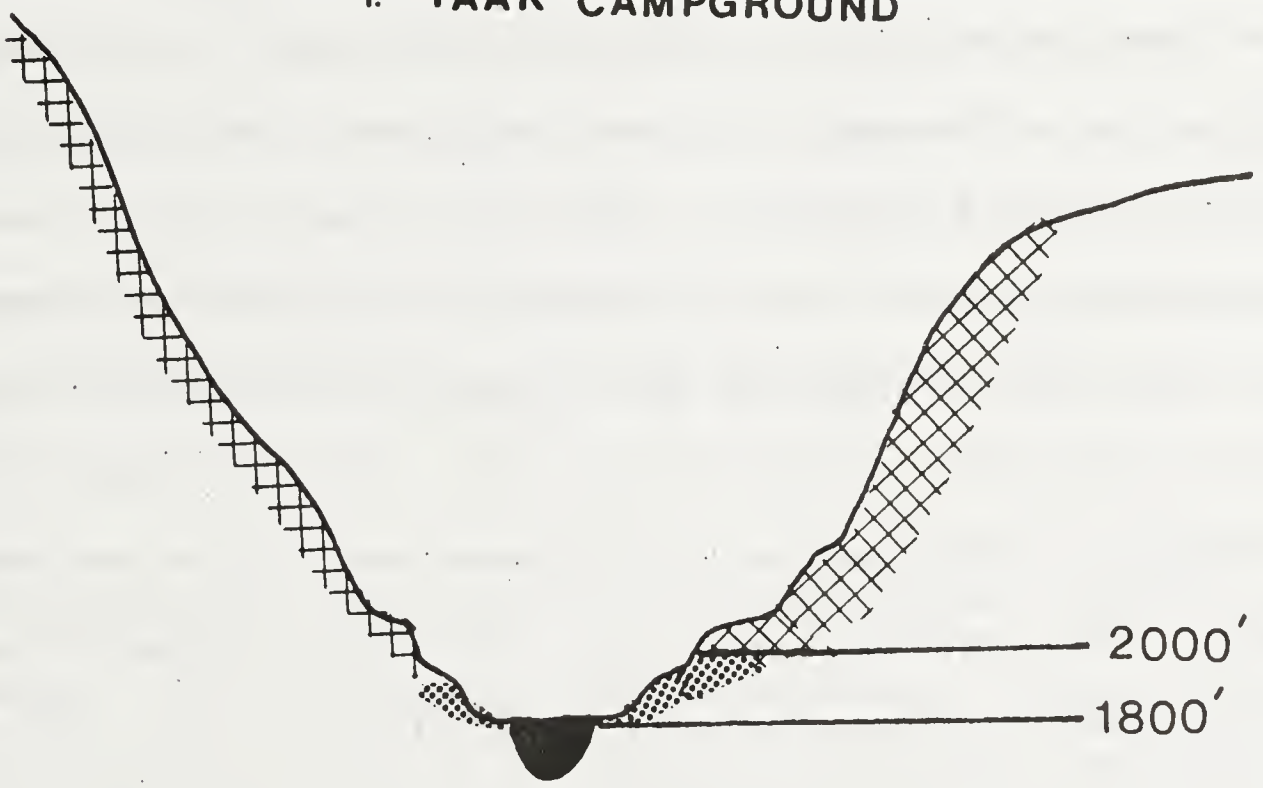
– un-investigated areas

– kootenai river

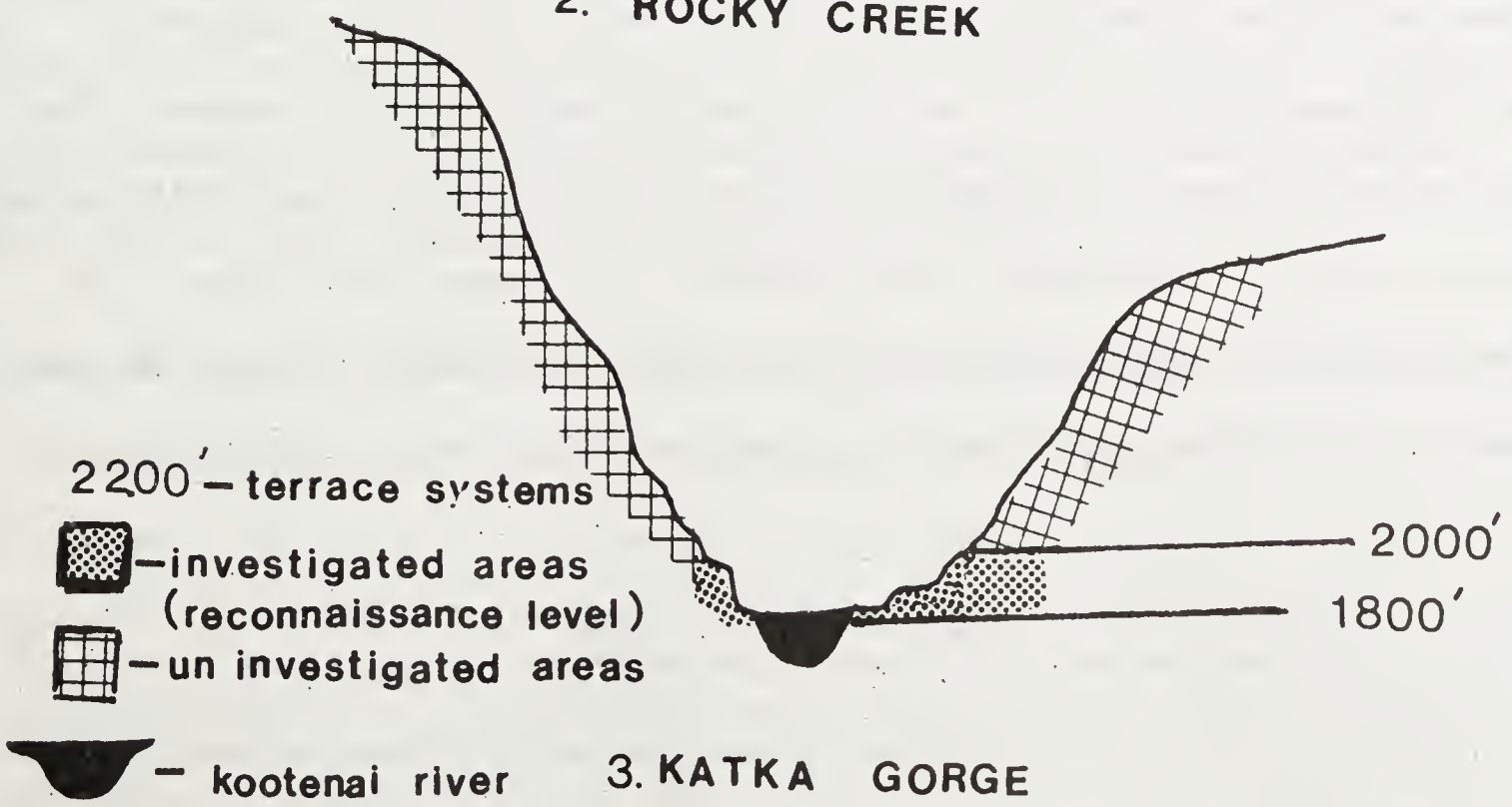
B.



1. YAAK CAMPGROUND



2. ROCKY CREEK



3. KATKA GORGE

between the Fisher River mouth and Libby. There is evidence of extensive "later prehistoric" habitation on the more recent floodplain surfaces adjacent to the Kootenai River. This hypothesis has yet to be completely verified by a detailed archaeological survey throughout the Kootenai River Valley. Nevertheless, archaeological investigations conducted upstream from the project area tend to verify that the larger the available land surface adjacent to the river, the more extensive the archaeological record.

A brief overview of the Kootenai River Valley is helpful to this discussion (Fig. 2). The Kootenai River originates in Canada. It enters Montana in what is now Lake Koocanusa behind Libby Dam. From Libby Dam, the Kootenai River passes southward through the Purcell Mountains, turning abruptly west at its junction with the Fisher River. The river valley in this stretch is characterized by comparatively extensive recent floodplain deposits and river terrace systems. The Kootenai River from the Fisher River to the town of Libby is physiographically similar to the portion above the Fisher River. Intensive archaeological investigations in this area have yielded numerous prehistoric campsites and a portion of this area, the Libby-Jennings Archaeological District, has been determined eligible for listing in the National Register of Historic Places. The human habitation and use of this area can be attributed to the rather extensive floodplain area and terraces suitable for long-term camping, with ample supplies of water, firewood, and grass for horses. The south-facing north shore is warmed by the sun which enhances vegetation growth and wildlife habitat, improving its suitability for human habitation. The extensive floodplain areas at the mouths of Libby and Bobtail creeks on the Kootenai River have been the scene of intensive prehistoric, historic, and modern activity.

The numerous small mountain stream tributaries (e.g. Dad Creek, Burrell Creek) flowing into the Kootenai River almost invariably have archaeological

sites on the alluvial fan terraces. A similar association was noted by Jermann and Aaberg (1976) during their study of the distribution of archaeological resouces in the area flooded by Libby Dam. This suggests that prehistoric people preferred clear creek water to the often silty Kootenai River water. Camping near creeks also would have provided easy access up the drainage to high mountain ridges and meadows for hunting and gathering. At any rate, the mouths of creeks emptying into the Kootenai are prime spots for cultural remains, and those in the area of the alternative dam sites should be carefully checked.

Several miles downriver from Libby, the Kootenai River becomes constricted and the floodplain and river terraces diminish in size. This section of the river is more bedrock-controlled than the upper reaches. Terraces on the south shore are smaller, steeper, and appear to have been less preferred for habitation, according to the available archaeological data. On the north shore, however, the floodplain and river terraces available for human use are more extensive.

The density of archaeological sites appears to rise dramatically adjacent to the Kootenai Falls gorge. This may in part reflect the intensive archaeological inventory performed in the falls vicinity, in relation to the less well-tested surrounding area. The role of the falls as an obstruction to otherwise continuous river and shoreline travel (at least on the north bank), appears to be responsible for an archaeological record that has yet to be duplicated elsewhere on the river (Carlson and Loscheider 1977, CRC 1980).

Downstream from the Kootenai Falls gorge, the river valley broadens and is more affected by fluvial processes. Huge areas of floodplain and older river terrace remnants characterize the mouths of Lake Creek and O'Brien Creek. Archaeological sites have been found in both of these areas. From Troy to the mouth of the Yaak, areas of extensive floodplain and older river terraces are interspersed with areas having only small amounts of alluvial surface (Johns

1970). Several prehistoric and historic sites have been found along this stretch of river. The huge and apparently stratified prehistoric campsite at the confluence of the Yaak and Kootenai Rivers is one of the largest and best preserved campsites on the Kootenai River in Montana (Carlson and Loscheider 1977, Young 1978). A number of "exotic" trade items (i.e. a small stone sculpture) and dense concentrations of cultural material have been found there, indicating its high cultural resource value.

The final stretch of the Kootenai River considered in this report is located between the Yaak River mouth and the Katka alternative site. This portion is not well known archaeologically or historically. The river in this area flows through a constricted, steep-walled gorge. The channel is largely bedrock-controlled and lies along the Leonia Fault.

This portion has very little floodplain suitable for aboriginal, historic, or modern occupation, and is mostly inaccessible. No sites have been located in this gorge. This may reflect actual cultural preference (downstream travelers, once past the Yaak, might prefer to get through the narrow canyon and camp on the open floodplain past Katka), but more likely is due to limited archaeological survey in this area. This area of the Kootenai River merits closer archaeological scrutiny before it can be adequately evaluated.

The relationship between the topography along the Kootenia River and the location of archaeological sites was summarized recently by Jermann and Aaberg:

> The importance of Kootenai's terraces to human settlement is amply borne out by both the present and past archaeological surveys. Cultural resources are almost exclusively restricted to terrace areas ... and reconnaissance which fails to completely cover these topographic features has a built-in bias that will have to be accounted for in any valid areal interpretation (1976).

History of Research

Numerous institutions, federal agencies, private interest groups and individuals have conducted amateur and professional research concerning the Kootenai region's prehistory and history.

History Research

Citizens of Libby, Troy, and other communities in the Kootenai have long shown interest in the history of the region. This interest led to establishment of a museum and a historical society, a local history archive at the city library in Libby, and a separate archive in Libby of the early logging days of the St. Regis Company. Local citizens also played an important role in establishing a prehistoric and historical interpretative center at Libby Dam. A Lincoln County historical and architectural overview currently underway at Montana State University for the State Historic Preservation Office is an attempt to tie together these varied local historical resources with scholarly research (Roeder and Heath 1981). The city of Troy, through a grant from the State Historic Preservation Office and the U.S. Department of Housing and Urban Development, conducted a city-wide historic resource survey (Williams 1980). Recently, the Montana State Historic Preservation Office proposed that a series of historic buildings in Troy be considered for Multiple Resource Nomination to the National Register of Historic Places (Bick 1981). The Corps of Engineers published an historical account of the Kootenai Valley history in conjunction with the construction of the Libby Dam (Spritzer 1979). The Department of Highways and the Historic American Engineering Record inventoried bridges in the project area as part of a statewide survey of historic bridges (Quivik 1980). Historical Research Associates will conduct an historical inventory between Libby and Troy along U.S. Route 2 for the Department of Highways in the summer of 1981 (Williams 1981). These studies, or portions thereof, will be available

for the DNRC Phase II research and should be valuable for assessing historic sites along the river.

The Kootenai River drainage is the traditional homeland of the Kutenai Indian tribe. Several anthropologists have visited and written about the Kutenai peoples (e.g. Boas 1915, Ray 1939, Schaeffer 1940, Turney-High 1941). Other articles more limited in scope have been written about the modern-day Kutenai (Malouf 1952, Baker 1955). Studies currently being prepared by the Kutenais and others (Northern Lights, DNRC), will expand the history of the Kutenai.

Prehistory Research

While most historical research and Kutenai Indian studies referenced above have been locally-based or sponsored by universities, archaeological investigations have largely been intitiated by the federal government in response to the potential loss of the archaeological and historical sites from proposed construction or development projects (Figure 4).

The first organized archaeological investigation of the Kootenai region was conducted in 1950 within the floodpool area of the proposed Libby and Katka reservoirs by a crew from the Smithsonian Institution River Basin Survey, under the auspices of the National Park Service (Shiner 1950). During the one-month survey the crew examined 130 miles of riverbank along the Kootenai River from the Canadian border to the Montana/Idaho border. Most of the time was spent examining 93 miles of riverbank within the areas that would have been flooded by the then-proposed Katka or Libby reservoirs. Although thick vegetative cover and rugged terrain made surveying difficult, the crew located 23 archaeological sites (Shiner 1950). Unfortunately, the crew's site descriptions and legal locations are brief and the sites have been difficult to relocate during subsequent surveys (e.g. CRC's survey of the Kootenai Falls area in 1980).

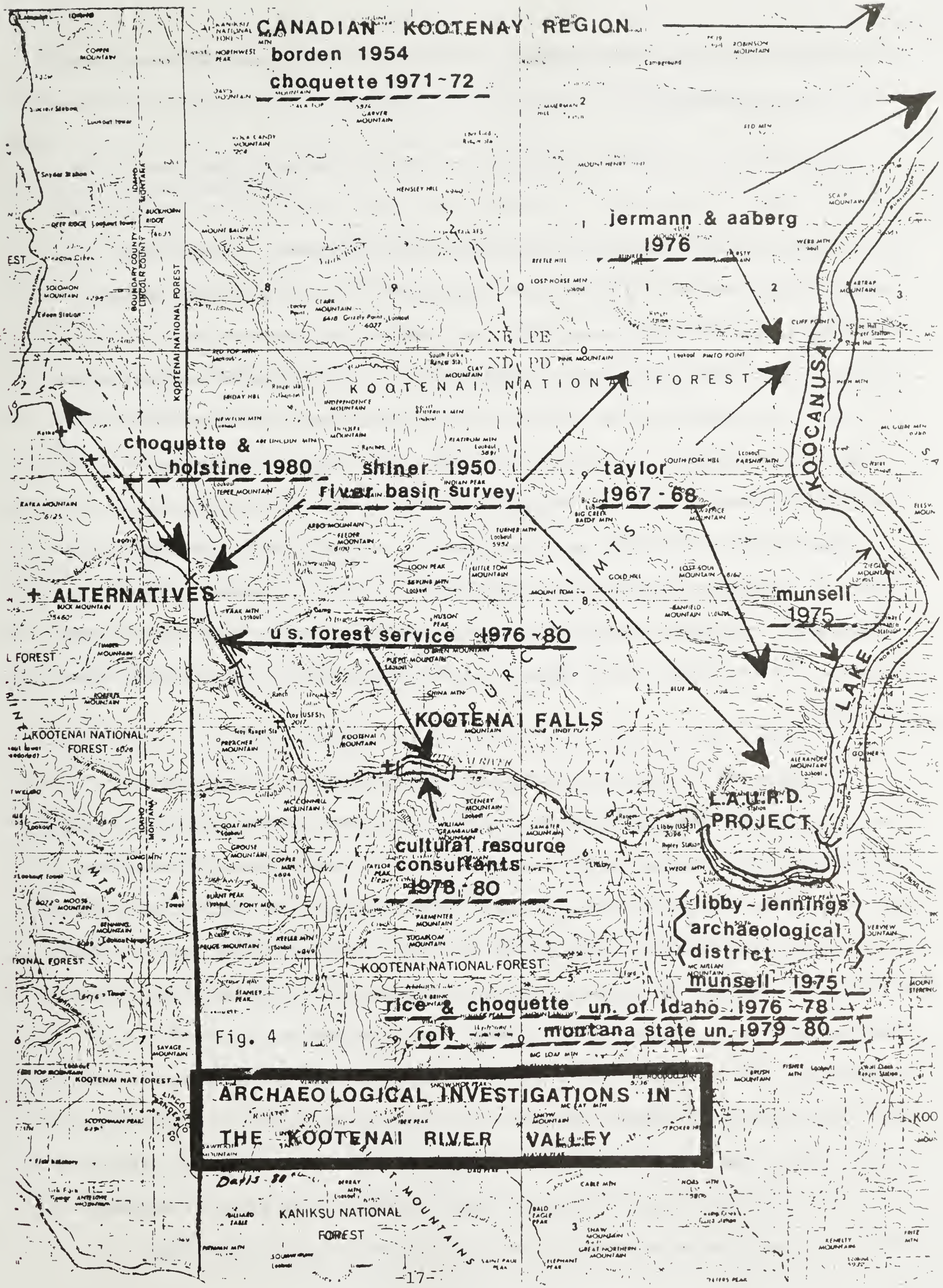


Fig. 4

ARCHAEOLOGICAL INVESTIGATIONS IN THE KOOTENAI RIVER VALLEY

Furthermore, the River Basin Survey reports are not widely available and the site data are incomplete.

On the basis of the River Basin survey, Shiner concluded that most of the Kootenai River in Montana was characterized by few archaeological sites (1950). More recent research has proven this assumption erroneous. The cultural material collected by the River Basin crews has yet to be described in the literature, yet Shiner reported that the "grooved maul" was the most characteristic tool in the area. This statement has had little substantiation by later investigators. The report says that downstream from Troy "The river canyon becomes almost a gorge ... ((which))...restricted the aborginal occupation almost entirely to the upstream half of the ((proposed Katka)) reservoir." This conclusion may have some basis in fact given the minimal amount of floodplain available for habitation in the Katka gorge. Shiner recommended ten sites be tested prior to inundation by the proposed Katka dam. However, the Katka dam construction plans were abandoned and none of the sites was tested.

Although some conclusions of the River Basin Survey have been proven incorrect by more thorough research, this survey nevertheless provided at least preliminary data on some stretches of the river for which few additional data are available. The site reports, though brief, provide some indication that the river downstream from the falls (except perhaps in the gorge upstream from the Katka site) was used by aboriginals with approximately the same intensity as the upper stretches of the Kootenai. Several of the survey sites should be reexamined. For example, Shiner describes an aboriginal burial site located at Kootenai Falls --- a lead which must be followed up in light of the potential impact to it from the proposed Kootenai River Hydroelectric Project. It is crucially important in evaluating the reported River Basin Sites at Kootenai Falls and the alternative power sites to know what CRC, the consulting

archaeological firm hired by Northern Lights, discovered during its examination of the Smithsonian River Basin Survey Archives in Washington, D.C.(CRC 1980). Without these data, the sketchy information in the published River Basin study has very limited usefulness.

Following the early reconnaissance by the Smithsonian River Basin Survey, archaeological investigations in the Montana portion of the Kootenai region came to a standstill. A few topical studies were conducted, particularly in regard to Kutenai Indian ethnography (e.g. Malouf 1952). Local historians and archaeology buffs continued to turn out an occasional article on local archaeological findings. A few archaeological surveys were conducted in portions of the Kootenai River drainage (e.g. Borden's 1956 survey of the East Kootenai region of British Columbia and Miller's brief 1959 survey of Kootenai County in Northern Idaho). Much more effort was put into archaeological research within the two larger cultural areas bordering the Kootenai on the west and east: the Columbia Plateau and the Great Plains.

The situation suddenly changed in the early 1960s when the U.S. Army Corps of Engineers finalized its plans for construction of Libby Dam. The National Park Service contracted with the University of Montana, under the direction of Dee C. Taylor, to resurvey and salvage the archaeological resources to be inundated by the proposed reservoir. Over the course of the two-summer survey in 1966 and 1967, 28 cultural resource sites were found (Taylor 1973). Eleven of these were tested and salvage excavations were conducted at the Fisher River site. Taylor's work is basically descriptive and his findings were interpreted within the accepted cultural chronology of the time. His work has been criticized for its lack of synthesis (Jermann and Aaberg 1976; Choquette and Holstine 1980), but this meagerly funded work remains as a useful basis for further studies by other researchers.

Following Taylor's work, the British Columbia Provincial Archaeologist's Office approved inventory-test excavation level research on the Canadian portion of the Kootenai River that was to be flooded by Libby Dam (Choquette 1973). As a result of Choquette's work for the British Columbia government, and later for the Corps of Engineers and the Bonneville Power Administration, described below, Choquette and fellow researcher Craig Holstine formulated a rudimentary local culture chronology and explanatory model (Choquette and Holstine 1980). Many of their interpretations rest on assumptions that remain unverified (e.g. concerning the origins and importance of the local geomorphology; the assumed origins of the various volcanic ash lenses). Nevertheless, their work provides a useful synthesis of existing information on Kootenai prehistory.

Further archaeological investigation of the Kootenai River was undertaken below Libby Dam in the spring of 1975 in response to the proposed reregulating dam construction. U.S. Army Corps of Engineers archaeologist David Munsell conducted an archaeological reconnaissance in the area within ten miles downstream of Libby Dam, in connection with the proposal to install additional generating capacity at Libby Dam and a reregulating dam. Munsell recorded 39 cultural resource sites along this stretch of the Kootenai River (Munsell and Salo 1979). He also reexamined several sections of Lake Koocanusa shoreline and located 20 previously unrecorded sites along the eroded beach. The Army Corps of Engineers, impressed with Munsell's findings in Lake Koocanusa, contracted with archaeologists from Montana State University to resurvey the lake shoreline. A three-week long sample survey of the reservoir yielded 21 sites (Jermann and Aaberg 1976). Once again, it was found that the cultural resource base of the area was much richer and more varied than previous investigators had suspected (e.g. Shiner 1950, Taylor 1973). Based on site density in the area sampled, Jermann and Aaberg estimated there probably were 400 sites located within the floodpool of Lake Koocanusa.

The Libby Additional Units and Reregulating Dam (LAURD) project has been the focus of recent archaeological research on the Kootenai River. This research began in 1977 when the U.S. Army Corps of Engineers contracted the University of Idaho, under the direction of David Rice and supervision of Wayne Choquette, to intensively survey the proposed reregulatoy dam reservoir and to auger-test the sites recorded by David Munsell in 1975.

In 1978 the project area was determined to be eligible for inclusion in the National Register of Historic Places as the Libby-Jennings Archaeological District. Test excavations continued during 1978 and three sites associated with the haul bridge construction were salvaged (Munsell and Salo 1979).

In 1979, Montana State University, under the direction of Tom Roll, continued the field investigations. A published report is expected to be available in late spring of 1981. The report should provide much useful information concerning Kootenai River prehistory including a radiometrically dated chronology for northwestern Montana.

A total of 52 sites has been identified within the LAURD project area to date (Munsell and Salo 1979) Although it is likely that a few additional sites would be exposed in the shoreline if the reservoir were built, it is reasonable to conclude that the LAURD sampling strategy provides a reliable sample of sites within a defined area on which to base site density estimations for other areas of the river. The site density estimate in DNRC's alternative site study is based on the site density predicted for the LAURD project area.

Cultural resources also have become an important part of federal and state resource management policy. In 1975 the Kootenai National Forest contracted with the University of Montana for a preliminary archaeological reconnaissance of selected river drainages in the Kootenai National Forest (Carlson and Loscheider 1977). This study located nine sites on the north shore of the

Kootenai River between Libby and Leonia. Several of these sites, located on the rocky terrace above Kootenai Falls, appear to have cultural remains not commonly found elsewhere on the river.

The cultural resource program has since continued on a seasonal basis on both the Kootenai and Kaniksu National Forests in Montana and Idaho. Combined with the results of Carlson and Loscheider's (1977) survey, a total of 22 sites has been located by Forest Service archaeological crews along the Kootenai River from Kootenai Falls to the Idaho border. In 1979 the Kootenai National Forest submitted a nomination to the National Register of Historic Places for an archaeological district which included a three-mile stretch of federal land on the north bank of the Kootenai Falls gorge. The Keeper of the Register rejected the nomination on the basis that more data were needed, the proposed district boundaries needed adjustment, and the sites therein required more careful analysis and interpretation. Several sites within the proposed archaeological district lie within the proposed Kootenai River hydroelectric project boundary. At present, the Kootenai National Forest archaeologists are consulting with the Montana State Historic Preservation Office to correct the deficiencies in the nomination (Green 1980).

Compared to the Kootenai Falls vicinity, the Kaniksu National Forest portion of the Kootenai River in eastern Idaho is relatively unknown. This is the portion of the river that would be affected by the Katka Dam alternative. The search for literature pertinent to cultural resources within or near the project area was fruitless. However, a few site leads from amateur collectors who have searched the Kootenai River banks indicate that the area was at least periodically inhabited (Simms 1980).

CRC's inventory of the Kootenai River hydroelectric project area comprises the most recent phase of intensive archaeological research on the Kootenai River. Some 20 sites were located and auger tested during the two-year

investigation (CRC 1980). Unfortunately, these data have so far been treated only in a preliminary and descriptive fashion. There was little interpretive analysis or documentary research to support CRC's recommendations. Clearly, however, several of the sites are of potential importance to local and regional prehistory. CRC's inability to obtain a federal antiquities permit to test sites on U.S. Forest land left incomplete the analysis of the cultural resource impacts of the proposed Kootenai River Hydroelectric Project . CRC performed only preliminary treatment of the data it gathered on the south end of the project area and the limited data from the forest service land on the north end.

Although the numerous deficiencies in CRC's data make actual site assessments difficult, the survey was sufficiently intense to provide site density information. The auger testing provided useful information concerning site parameters and size in the vicinity of the proposed Kootenai River hydroelectric project. Information of this type is unavailable for the River Basin and Forest Service sites.

The most recent research to date within the Kootenai area includes a partial survey of the Bonneville Power Administration's Libby-to-Rathdrum powerline (Choquette and Holstine 1980) and the Forest Service cultural resource inventory program within the Kootenai and Kaniksu National Forests (Collins 1980, Simms 1980). Choquette and Holstine were not allowed to survey on Forest Service land because the Kutenai Indians prevented issuance of an antiquities permit.

The preceding discussion shows the general nature of cultural resource research that has been conducted in the Kootenai River Valley, and identifies the data that are useful to this alternative study. A great deal of research and interpretation clearly remains to be done.

Methods

The intent of this study is to derive cultural resource site density estimates for each alternative dam site and associated reservoir. An on-the-ground reconnaissance survey was not possible because the U. S. Forest Service, on request of the Kutenai Indians, did not issue the necessary antiquities permit. Therefore, the study is based on a topographic analysis and comparison of the alternative dam sites with sections of the Kootenai River which have been subject to intensive archaeological investigations (see Fig. 4).

The DNRC alternative site study methodology is based primarily on the methods Jermann and Aaberg (1976) used to make site population estimates for Lake Koocanusa (See Appendix A for a description of their study). The conclusions of their study are relatively sound and their methods are applicable, for general comparative purposes, to other areas of the Kootenai drainage. There are several differences between Jermann and Aaberg's study and the DNRC alternative site study. A principal difference lies with the data on which the site population estimates or predictions were based. Jermann and Aaberg recorded 21 cultural sites in a survey which sampled only 6% of the land likely to have such sites. They concluded that a larger area of the same land types would include the same site density as the area actually surveyed. Their site density predictions for the entire Libby reservoir were neccessarily based on the density found in their initial small sample.

Jermann and Aaberg's predictive assessments are based on a sample of sites within the area they studied as contrasted to the DNRC analysis which relied largely on extrapolating from densities in the relatively well-known Libby-Jennings Archaeological District. The data from the Libby-Jennings Archaeological District were not available at the time of Jermann and Aaberg's study. DNRC also bases its site density estimates in part on the known site density in portions of the area that would be affected by alternative dams.

Both the DNRC and the Jermann and Aaberg strategies rest on assumptions. Jermann and Aaberg's assumption is that their initial population estimate based on known site density in a portion of their study area is a reliable basis for further estimates. The assumption in the DNRC study is that the site density in archaeologically-known area of the river is the same as in the alternative dam site areas.

A more detailed, and soon to be published description, of the Libby-Jennings Archaeological District wil highlight both the strengths and weaknesses of using this area as the basis for predicting site densities in the alternative site areas. The Libby-Jennings district is the best known section of the river, archaeologically. The district has been surveyed and extensively tested, whereas other areas along the river have not. However, there are some problems inherent in using data from the district for comparative purposes. For example, it was found that the results of the field survey did not always correspond with the findings of the testing program. The testing program showed some of the sites identified during the field survey to be smaller than indicated in the survey. In most cases the size reduction was estimated to be approximately 30 percent (Roll 1981). Testing showed some sites found in the field survey did not contain cultural material. Testing is the only means of assessing a possible subsurface site and it is common for the testing to indicate the absence of cultural material. The detailed testing of the LAURD sites may show the presence there of fewer sites than previously believed, which would indicate a lesser density of sites elsewhere along the river. The results of this testing are not yet available, but are expected soon. The lack of these data forces DNRC to rely on survey information, which may result in an overestimate of the number of sites. The DNRC estimates will be revised when the most recent LAURD project data (Roll 1981) become available.

Another problem with using the LAURD data is that the environmental setting and site distribution pattern may not be strictly comparable to other sections of the river where alternative dam sites are located. In a reconnaissance-level evaluation, such factors can be considered only in a general fashion (e.g. the ruggedness of the Katka gorge might preclude intensive human habitation) without the benefit of an on-the-ground field survey.

The Libby-Jennings Archaeological District extends approximately 11 miles along the Kootenai River from Libby Dam to about two miles east of Libby. Both riverbanks in this area contain a rich variety of prehistoric and historic sites. The prehistoric sites within the district usually are characterized by animal bone fragments (primarily from deer); assorted chipped stone tools and flakes, and burned and broken river cobbles representing the remains of fire hearths. Most of the sites range in age from ca. 3000 BC to AD 1800 (Roll 1981), and tend to be concentrated near the river's edge. Site sizes vary from several meters square, single-activity areas such as might be used by a hunter refurbishing a tool or weapon, to village sites several hundred meters square. Historic sites include a series of old homesteads, steamboat docks, and the remains of the townsite of Jennings. The district is known to contain 52 cultural resource sites, most of which are prehistoric (Munsell and Salo 1979). However, the Libby-Jennings Archaeological District map lists 56 sites. This disparity illustrates the problem inherent in defining sites and site boundaries and the effects of cumulative research by more than one study group. Some of the sites are very close together and probably should be considered as single sites to be designated by one Smithsonian number. Without such consolidation, the site density probably is inflated, and will continue to be overestimated until reality can be established through subsurface investigations.

Jermann and Aaberg's method of calculating site density can be applied to the LAURD study area. There are 2065 habitable acres in the district, lying

between the present river bank (the 2000 ft. terrace) and the 2200 foot river terrace. Using the conservative count of 52 sites in the LAURD area, Jermann and Aaberg's method shows there to be one site per each 40 acres (52/2065). This is the acreage density of archaeological/historical sites over the 2065 acres and does not necessarily reflect the actual site distribution or size of sites. Surveys within the Libby-Jennings Archaeological District and elsewhere on the river, show that the site density pattern decreases as one moves away from the water (Roll 1981). The later prehistoric occupation of the Kootenai River Valley was by river oriented peoples who used the river extensively. The dense site concentration within the Libby-Jennings Archaeological District verifies the expectation that these people would have made extensive use of the riverbanks.

Jermann and Aaberg calculated that there were 400 sites along the portion of the Lake Kookanusa shoreline they sampled (See Appendix A). However, the area they studied is less comparable to the alternative dam areas than is the Libby-Jennings area. This is because Jermann and Aaberg examined the upper river terraces along the shoreline of Lake Koocanusa which are higher and older than the terraces along the river bank (See Fig. 3). One of the oldest known prehistoric cultures from the Kootenai River Valley, referred to by archaeologists as the "Bristow Complex" (ca. 5000-3000BC) was initially identified on the basis of evidence derived from these higher river terraces in Lake Koocanusa (Choquette and Holstine 1980). Other archaeological investigations such as those associated with the LAURD project and the Kootenai River hydroelectric project have focused primarily on lower river terraces and the river floodplain within the proposed project boundaries. The river terraces surveyed in the LAURD study are 90 feet below the river terraces examined in Lake Koocanusa. Jermann and Aaberg (1976) provided most of the documentation for the earlier prehistoric human groups in the Kootenai River Valley. According to several investigators (Choquette & Holstine 1980), these studies

provide evidence suggesting that the first inhabitants of the region were an "upland" oriented hunting and gathering culture, different from that of the later "riverine" adapted people of the lower river terraces.

The Kootenai Falls area also has been extensively surveyed for cultural resources (CRC 1980). Site density in this area is one site in 27 acres, compared to one in 40 in the Libby-Jennings area. The higher density of sites at Kootenai Falls may result from its unique situation as a barrier to river travel, and the consequent portage and camping activity there. Therefore, it is felt that site density data from this area are less representative of conditions elsewhere along the river than are those from the Libby-Jennings area.

To summarize, the archaeologically well-known Libby-Jennings District seems to provide the most sound data base from which to predict site densities for other areas of the river. It has been extensively tested and is similar to other areas of the river geographically and in its suitability for human habitation. The site density figure for the area may be slightly inflated, as noted above, but DNRC will revise its site density estimates for other parts of the river in light of the data expected to be published soon in regard to the Libby-Jennings area (Roll 1981).

The site density data from the Libby-Jennings area was applied to the alternative dam area, with the following methodology. U.S. Geological Survey (USGS) legal sections (one square mile) were used as a standard unit. The habitable acreage along the river between Kootenai Falls and Libby Dam was considered to be the area from the river bank at approximatley 2,000 ft. elevation to the 2200 foot river terrace (Fig. 5). All known archaeological sites in this portion of the river are located within these elevations. From the Kootenai Falls gorge to the Katka site in Idaho, the habitable acreage was computed from the riverbank at approximately 1800 feet to the 2000 foot terrace.

LOCATION	NO. OF SECTIONS	INHABITABLE ACREAGE	(1) NO. OF KNOWN SITES WITHIN SAMPLING PARAMETERS	SITE DENSITY	NO. OF PREDICTED SITES
Investigated Areas					
Lake Koocanusa	82	13,715	21	1/652	400
Libby-Jennings District	20	2,065	52	1/40 (2)	52 (2)
Kootenai Falls	6	892	28	1/27 (3)	28 (3)
Applicants Alternatives	NO. OF SECTIONS	INHABITABLE ACREAGE	KNOWN SITES	PREDICTED SITE DENSITY	NO. OF PREDICTED SITES
Alternative I	28	3,650	18	1/40 (2)	91
Alternative II	28	3,480	18 (plus town site of Troy)	1/40 (2)	87
Alternative III	24	4,136	56	1/40 (2) 1/27 (3)	109 (3)

Fig. 5

Data used to determine site population estimates

(1) Acreage was computed using DNRC's Linear Measuring Set which, in this analysis, functioned as an electronic planimeter. With this system a television camera and a mini-computer are used to highlight areas of a given color from topographic maps. The acreage between the river bank to the appropriate river terrace was automatically computed by the mini-computer. This system of analysis saves a great deal of time and insures accuracy and consistency. Error factor is about 5% which largely reflects the scale of maps (1': 24000) used in this analysis.

(2) Site population estimates for the alternatives are based on the site density figure of one site per forty acres derived from the Libby-Jennings Archaeological Districts. This figure was simply divided into the total area available in each alternative to find the predicted number of site occurences. The figures are intended to provide only a relative scale of probable site density. Recent testing of eight sites within the Archaeological District by Roll indicate that the one to forty figure may be inflated as much as 30%.

(3) Alternative III is adjusted from the above population estimates to reflect the known site density as defined by surveys and limited auger testing in the Kootenai Falls area which is one site per 27 acres.

The different terrace elevations reflects the drop in riverbed elevation at Kootenai Falls.

The acreage figures for all the possible dam sites were accurately measured and calculated on the DNRC's Linear Measuring Set as shown in Figure 5. The acreage figures in Table 5 are the total habitable acreage that would be affected by each alternative hydroelectric project.

The site density of one per 40 acres characteristic of the Libby-Jennings area was applied to the total habitable acreage within each alternative project area, resulting in the density estimates shown in Figure 5.

An exception was made in the case of Alternative III. There, the actual number of sites in the Kootenai Falls area was substituted for the estimated number.

A detailed description of each of the alternatives follows.

Results

Alternate Project I

Alternate Project I is the construction of a high dam at Katka in eastern Idaho (Figure 6). The resulting reservoir would stand at 1868 feet elevation , inundating 16 miles of the river in Montana and Idaho. The High Katka alternative would affect portions of 28 sections of land adjacent to the Kootenai River. Most of this land is owned by the Kootenai and Kaniksu National Forest, but large sections of the river frontage are privately owned. The acreage between the river bank (average elevation 1929 ft) and the 2000 foot terrace system on all 28 sections totals 3650 acres. Almost half the length of the river that would be inundated is within the narrow Katka gorge with its bedrock controlled river channel. This section of river extending upstream from Katka to about a mile upstream from Leonia encompasses only about 900 acres of

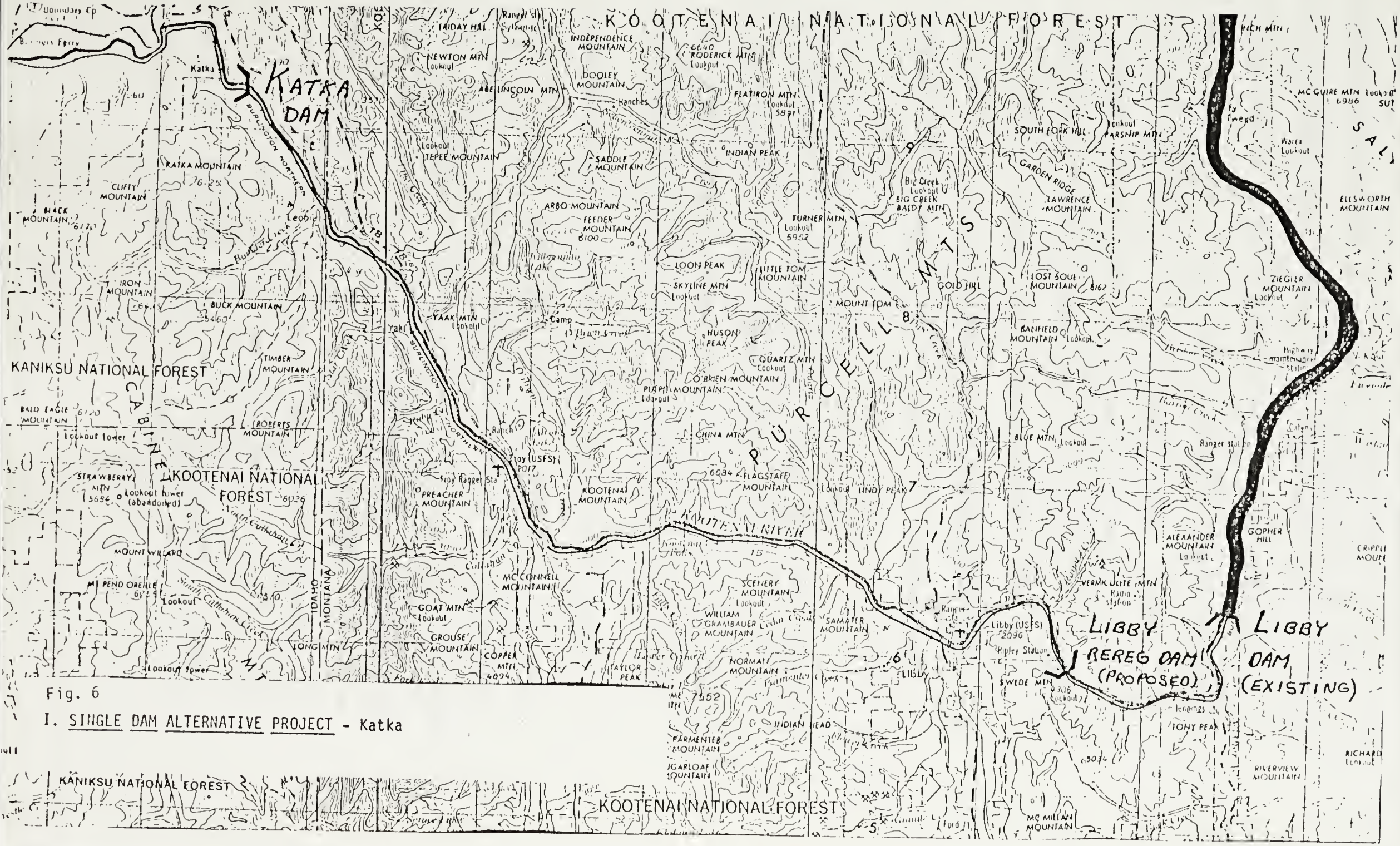


Fig. 6

I. SINGLE DAM ALTERNATIVE PROJECT - Katka

floodplain and low-river terraces, minimizing the amount of land available for human habitation.

The lack of inhabitable land probably is one reason there are no known cultural resources in the Katka gorge. The lack of known sites also may be due in part to the limited amount of archaeological survey that has been conducted on this remote section of the river. Also, post-Pleistocene fluvial processes may have "flushed-out" the vestiges of early prehistoric sites. Careful examination of the riverbanks, particularly at the mouths of small mountain streams (e.g. John Crown Creek, Caboose Creek), and on the alluvial terraces above large tributaries, such as Boulder Creek, probably would yield evidence of prehistoric campsites. Several amateur collectors have reported finding a few Indian Artifacts (arrowheads and scrapers) in the vicinity of Boulder Creek (Carlson 1979).

The gorge lies on the travel corridor between the upper and lower Kootenai River drainages which were inhabited by the upper and lower Kutenai Indian bands. Therefore, there undoubtably was some human activity in the area, and it merits on-the-ground investigations before it can realistically be evaluated.

The area from the mouth of the Yaak River to near the mouth of Ruby Creek is much better known, archaeologically, with many cultural resource sites known to exist near the river (Figure 7). There are eighteen prehistoric sites along a six-mile stretch of river lying near the mid portion of the reservoir that would result from Alternative Project I. Several historic homesteads or logging camps are thought to be located in this vicinity but they are on private land or can only be reached by crossing private land and so have yet to be professionally reported (Hileman 1978). All of the historic and prehistoric sites on record are located on the edge of the riverbank. Most were found by Forest Service archaeologists conducting reconnaissance level inventories.

Eleven prehistoric sites (24LN76 through 24LN86) were located by Forest Service archaeologists working under the supervision of a local resident archaeologist, Alfred Journey. As briefly recorded on cultural resource inventory forms, the sites are characterized by a scattering of prehistoric cultural material exposed on the river banks and in the beach sand. Typical remains include stone flakes and tools, animal bones and evidence of prehistoric fire hearths, such as blackened fire-broken cobbles. A few stone tools used for tentative diagnosis date the habitation of the area to the late Prehistoric Period. The sites where the tools were found were recommended for further evaluation and testing.

The Smithsonian River Basin Survey found two similar sites several miles upstream from the mouth of the Yaak River but did not recommend them for testing, although they had generally the same kind of cultural evidence as at those recommended for testing (Shiner 1950). This indicates a problem inherent in the River Basin Reports which is that it is impossible to determine what evidence the recommendations were based on. In 1978 this author and a local resident briefly examined what appears to have been Shiner's site 24LN26 and concluded that the sites probably should be tested in order to be adequately evaluated.

Four other sites (24LN40, 24LN42, 24LN43, 24LN44) were located by Forest Service archaeologists during the fall of 1975 near the confluence of the Yaak and Kootenai Rivers (Carlson and Loscheider 1977). At the same time, the huge prehistoric campsite (24LN1013) situated beneath the present-day Yaak campground was reexamined, photographed and preliminarily tested (Carlson and Loscheider 1977). All of these sites are exposed in stratigraphic profile in the bank of the Kootenai River and are evidenced by the culture-bearing strata, several unlined fire hearths and a large cobble-lined roasting pit. It is impossible to adequately address the potential importance of these sites without benefit of

further testing. Amateur collectors have found a variety of stone and bone tools, ornaments and a uniquely carved stone figurine on the Yaak Campground site (Young 1978).

Some of the sites discussed in the preceeding paragraph perhaps should be consolidated, given their proximity to one another. Such consolidation has been done elsewhere on the Kootenai River where the extent of the cultural material seems continuous from one site to the next. (Site designation numbers are used by archaeologists to organize archaeological data in the field and often change after subsurface investigations clarify site locations and size (e.g. CRC 1980). Cumulative research at Kootenai Falls has resulted in expansion of the boundaries on sites such as 24LN41 where shoreline erosion continues to expose more and more of the site. Thus, the number of sites in the vicinity of the Yaak River may be somewhat inflated. Despite the probable inflation of site numbers, the site density pattern along the Kootenai River near the mouth of the Yaak compares favorably with patterns observed elsewhere on the river. There is one known prehistoric site for every 70 acres of land within the six sections containing cultural resources in the vicinity of the Yaak River Campground. An intensive survey probably would show the actual density to be comparable to that in the Libby-Jennings area.

Continuing upriver within the floodpool boundaries of Alternative I, our knowledge of the area's cultural resources is limited. No sites have been reported from Ruby Creek to the end of the proposed floodpool boundary. The lack of known archaeological or historical sites in this area probably is due to the private ownership of the land and the corresponding lack of research. This stretch has huge areas of habitable alluvial floodplain and low river terraces which undoubtedly will yield evidence of prehistoric and historic sites if they ever are investigated. There are 395 acres of habitable land in Section 27 at Ruby Creek alone.

KATKA

ROCKY CREEK

YAAK CAMPGROUND

18 sites

forest service
river basin
C.T.C.

28 sites

TROY

KOOTENAI FALLS

78 sites
river basin
taylor
munsell
jermann &
aaberg

52 sites

L.A.U.R.D. PROJECT
39 munsell
13 un. of Idaho

KOOCANUSA LAKE

KOOTENAI NATIONAL FOREST

KANIKSU NATIONAL FOREST

SALISH MTS

CABINET MOUNTAINS

Fig. 7

DISTRIBUTION OF KNOWN CULTURAL RESOURCES IN THE KOOTENAI VALLEY

INVESTIGATED AREAS

ALTERNATIVE SITES

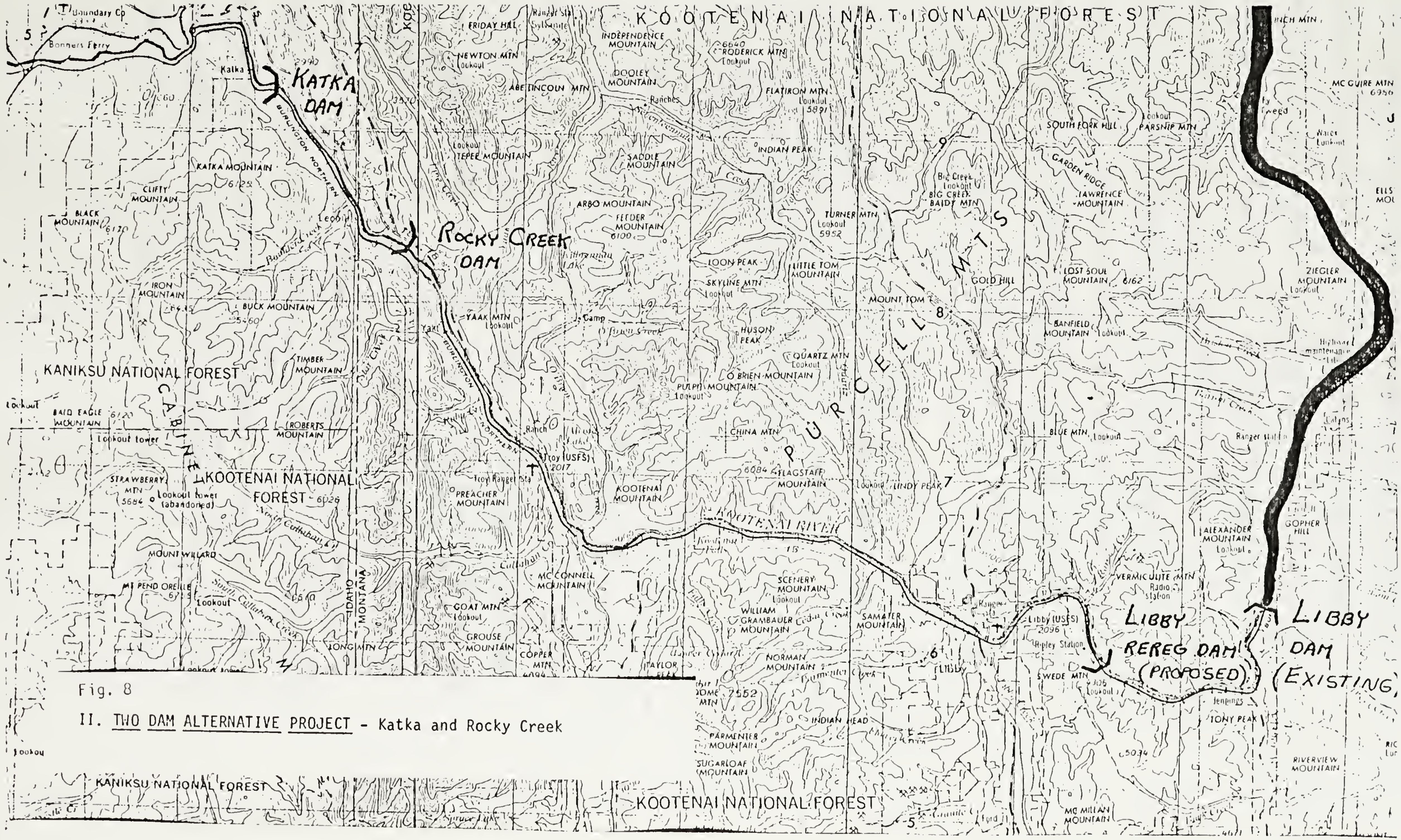


Fig. 8

II. TWO DAM ALTERNATIVE PROJECT - Katka and Rocky Creek

To summarize, 18 cultural resource sites have been identified within the project boundaries of Alternative I. This small sample of sites is almost certainly not an accurate representation of the area's cultural resource potential. The inhospitable terrain of the Katka gorge probably inhibited prehistoric human habitation, and hinders the search for whatever cultural remains there may be. The area from the Yaak Campground to the upper end of the proposed reservoir, by contrast, probably has a site distribution pattern similar to that within the Libby-Jennings Archaeological District. If this is correct, some 91 cultural resource sites would be located in the area of Alternative I (Figure 5).

Alternate II

Alternate Project II (Figure 8) is a two dam alternative which would involve a lower dam at the Katka site than in Alternative I, in combination with a dam at Rocky Creek. Rocky Creek is located about three miles below the confluence of the Yaak and Kootenai Rivers.

Essentially, this alternative would produce the same area of inundation as in Alternative I. A low dam at Katka, with a flood pool elevation of 1817 feet would inundate about 4.5 miles of river from the dam site to a point near the mouth of Boulder Creek on the Kootenai River. The proposed Rocky Creek Dam would be located at the upper end of the Katka reservoir and would flood to a point about a half mile upstream from Troy.

The distribution of cultural resources is the same as described for Alternative I. The proposed Rocky Creek Dam would affect the rich concentration of cultural resources centered around the confluence of the Kootenai and Yaak Rivers (Figure 7). No sites have been identified farther up the river to the townsite of Troy, although many are thought to be present, as noted under Alternative I.

The effects of the proposed Alternative II reservoir on the town of Troy are difficult to assess. Whether substantial relocation of buildings, the railroad track, roads and other facilities would be necessary is not known. The Montana State Historic Preservation Office is considering a series of historic buildings in Troy for Multiple Resource Nomination to the National Register of Historic Places (Bick 1980). Some of these properties could be affected by the proposed reservoir or elevated water table. For example, several properties listed within the West Troy First Addition near the Kootenai River, such as the Old Pump House and the Savage-Barker Transfer and Storage Warehouse are located near enough to the proposed floodpool boundaries to warrant careful consideration if the reservoir were ever to be built. As the proposed nomination is developed, the nature of these properties will become more fully disclosed, making it easier to judge potential impacts.

The combined dams would inundate parts of 28 sections. From the river's edge to the 2000 foot terrace, the sampling units encompass approximately 3480 acres of land. The known distribution of cultural resources within these units (18 sites plus the townsite of Troy) probably does not accurately represent the number of cultural resources in the area. Broad floodplain and alluvial terrace systems characterize much of the area, but most is privately owned and has not been carefully surveyed for cultural resources. If the site density is the same as it is upriver, there are approximately 87 cultural resource sites along this portion of the river on the lower terraces and floodplain.

In summary, there is little difference between Alternative I and Alternative II as to the extent of the proposed flood pool and the potentially affected cultural resource base. The main difference between the Alternatives is that the townsite of Troy with its historic sites is included in Alternative II.

Alternative III

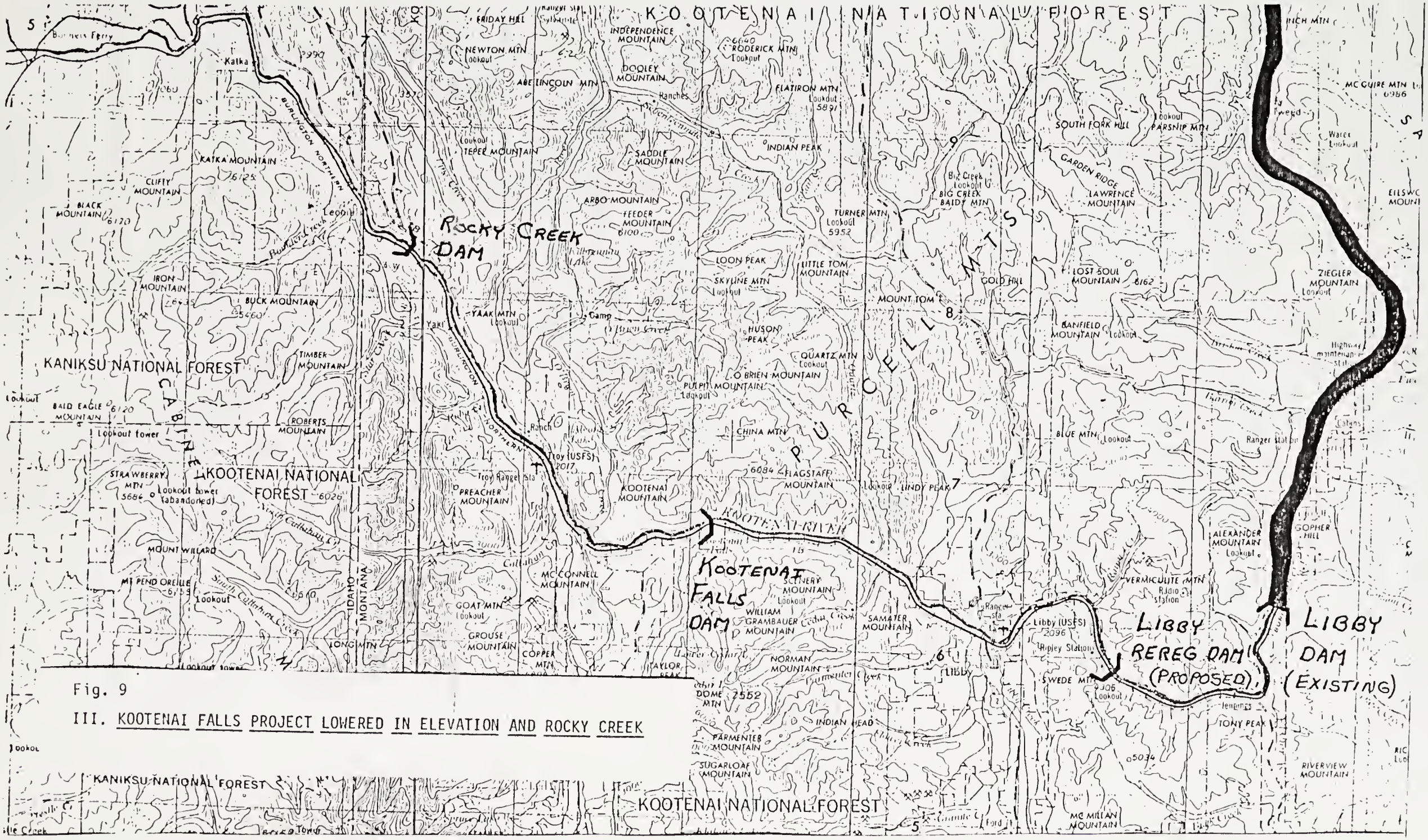


Fig. 9

III. KOOTENAI FALLS PROJECT LOWERED IN ELEVATION AND ROCKY CREEK

The Alternative III (Figure 9) would involve the construction of a lower dam than currently proposed at Kootenai Falls and a Rocky Creek Dam slightly lower than in Alternative II. Pool level for "Low Kootenai Falls" would be 1990 ft, with an 1857 level at "Low Rocky Creek."

The low Rocky Creek option was not mapped in HARZA Engineering Company's report so the exact pool boundaries could not be determined. Given the marginal differences in flood pool elevation, the Rocky Creek 1857 foot floodpool boundaries would be about the same as at the 1868 elevation in Alternative II, (Dalby 1981) and the impacts to cultural resources would be the same as described in Alternative II, with the addition of those from a lower dam than currently proposed at Kootenai Falls.

The area has a high potential for cultural resources, although few have been identified except adjacent to Kootenai Falls. Sites that would be affected by Alternative III have been identified by Forest Service Archaeologists and CRC researchers over the past several years. Unfortunately, CRC used its own site numbering system for both historic and prehistorics sites in its initial reports, rather than using Smithsonian site designations. This makes it difficult to determine which site is being referred to, when comparing reports. The situation becomes more confused when the Smithsonian River Basin Sites are considered, (e.g. 24LN19 and 24LN20). On the basis of CRC's most recent report (1980), it appears that 28 sites have been located within the project boundaries of the proposed Kootenai River Dam project. In some instances, the site boundaries appear to be rather arbitrarily defined, (i.e. 24LN173 and 24LN174), but in other cases site definition is more precise. Only the southern portion of the Kootenai River hydroelectric project area has received preliminary evaluation. CRC did not evaluate the northern half, which is located on Forest Service land, because a Forest Service Antiquities Permit could not be obtained. Four sites on Forest Service lands would be directly affected by the proposed

project.The range of sites in the project boundaries include exposed and extensive scatterings of chipped stone tools and waste flakes, a pictograph, several homesteads, an old railroad station and a historic foot trail. Most of the sites contain buried prehistoric layers which often are overlain by cultural materials from the historical period (e.g.the Burrell homestead).It is unfortunate that augering was the only method used in detecting subsurface components. The scant evidence produced by the auger holes was sufficient only for determining the location of buried deposits. Nevertheless, it is known that the buried prehistoric sites at Kootenai Falls compare well with other extensive campsites located farther upriver in the LAURD project area. However, some other types of sites, such as the rock shelters and the ceremonial site on federal land are not known to exist elsewhere on the Kootenai River and are considered "unique" to the prehistory of the area (CRC 1980). The sites that would be affected by the proposed project have been described by CRC (1980) and will not be discussed here.

At either the dam height preferred by the applicant for the Kootenai River hydroelectric project or the height proposed in Alternative II, reservoir floodpool would be largely the same (Dalby 1981). The surveyed portion in the Kootenai River hydroelectric project area includes six sections of land on both shores of the Kootenai River. Between the river bank (1960 ft) and the 2200 foot terrace, there are approximately 892 acres of land with a known cultural resource site density of one per 27 acres. The relatively small acreage between the terraces results from the confinement of the river by downcut bedrock.

As the only falls on the Kootenai River, Kootenai Falls appears to have attracted aboriginal groups to the area for religious and ceremonial purposes. The archaeological record (e.g the "ceremonial" site 24LN1012) and Kutenai Indian testimony seems to verify the importance of the falls. Finally, the falls area may have been important as a fishery (i.e. for sturgeon and trout as

is the case elsewhere on the Columbia River. This final combination alternative is estimated to contain some 109 cultural resource sites based on the known site density at Kootenai Falls and the projected site density at Low Rocky Creek (1 site per 40 acres).

1. ARCHAEOLOGY

Prehistoric Overview

The following is a preliminary overview of Kootenai prehistory based upon archaeological evidence collected in the Kootenai River Valley. The overview is intended to fulfill the baseline requirements for a prehistoric framework on which to evaluate the cultural resources within the area of the proposed project and the alternatives, and was to be provided by CRC (1980). The data are not developed in full here, but will be expanded upon during the DNRC Phase II research culminating in the EIS.

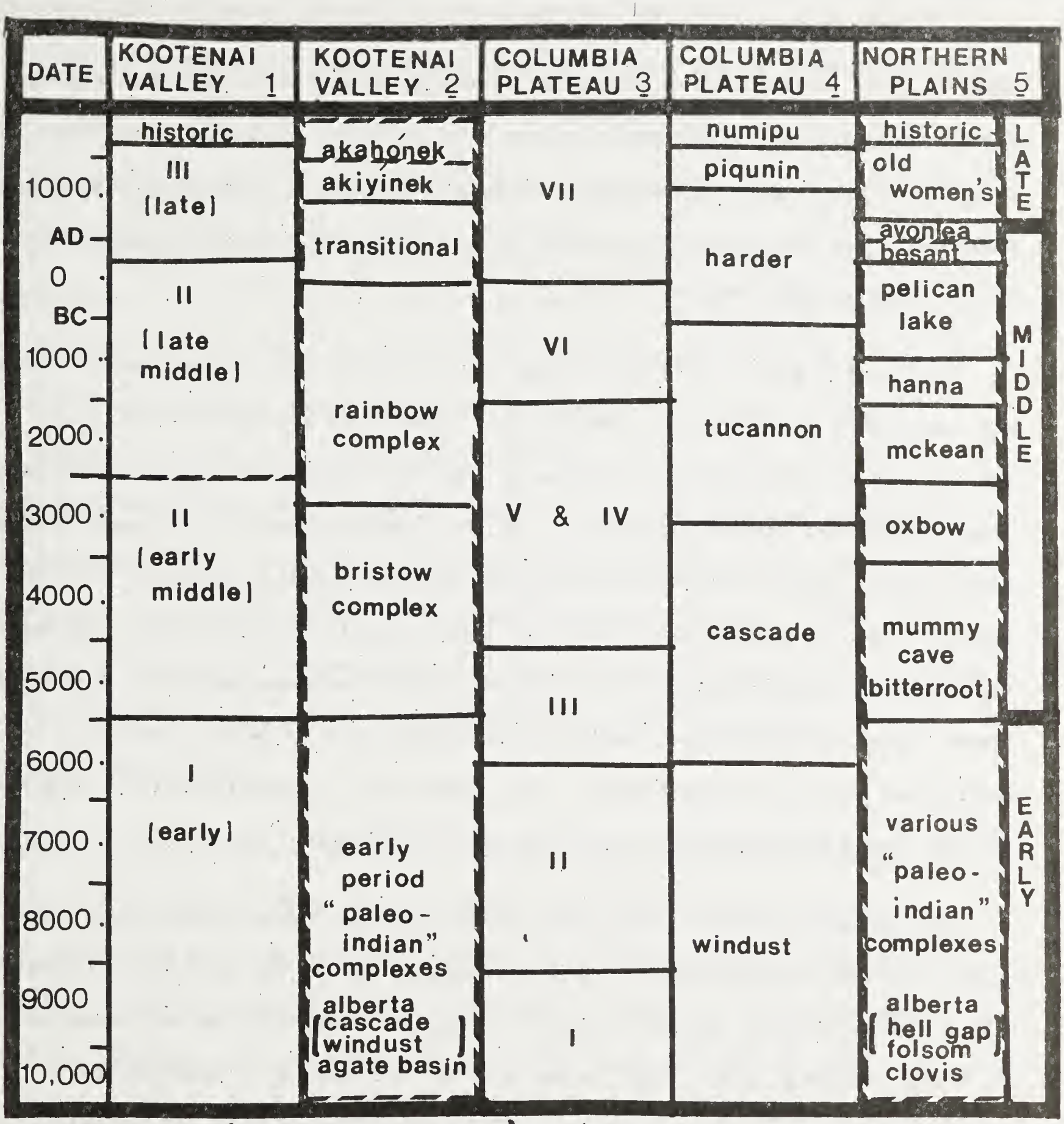
The various methods and techniques of prehistoric and historical archaeology are all directed toward the explanation of human behavior in the past (Deetz 1967).Archaeology, as part of the broader field of anthropology, is a means for reconstruction of extinct human cultural systems for which there are few or no written records. Archaeologists organize their survey and excavation data into chronological (age) and spatial (geographic) categories. These frameworks enable archaeologists to classify the chronological and geographical significance of their data. Some chronological frameworks reflect broad prehistoric and historic evolutionary stages in human cultural development (Old Stone Age or the Iron Age). Other chronologies are constructed to elucidate regional or local prehistoric or historic cultural-histories, although they belong to a broader evolutionary stage (e.g. "The Pre-Dynastic Period of Neolithic Egypt" or "The Early Period of Paleolithic Western North America"). These regional and local frameworks are divided chronologically by developmental

trends that changed the level of cultural development (e.g. on the northwestern plains, the introduction of the horse brought widespread cultural changes to Indian society, so the date of this event is used in the regional chronology to divide the late Prehistoric Period from the Protohistoric Period). During prehistory various human groups (e.g. ethnic groups, "cultures," or societies) often shared broad cultural similarities in their adaptation to the land and in their material culture, although there may have been great differences in genetic make-up among these groups. When the archaeological record shows these shared traits existed on a local or regional level, archaeologists refer to the cultures characterized by these traits as a "complex." These complexes are used by archaeologists to define the prehistoric cultural developments as the sequences of cultural changes in the archaeological record.

The prehistoric peoples of the Kootenai River Valley are classified as "Paleolithic" cultures. They were hunters and gatherers who never developed agriculture as a principal form of subsistence, and they did not attain the higher levels of technology on which more complex forms of civilization are based.

Within a regional or cultural-historical framework (Figure 10), the prehistoric cultures of the Kootenai River Valley shared broad similarities with other hunting-gathering cultures both to the east and the west of the Kootenai River Valley. However, until recently, there were few local chronological frameworks to form a basis for understanding the culture-history of the Kootenai Valley. Other early river research, such as that conducted on the pit house villages of the lower Columbia River, or the large, fortified earth lodge villages of the Middle Missouri River drainage, attracted most professional archaeological attention. The comparatively unspectacular remains in the Kootenai River region sparked little interest until regional specialists began to address the salient and interesting features of Kootenai River prehistory.

Fig. 10 Proposed Cultural Chronologies for the Kootenai River Valley and Adjacent Areas



1 TAYLOR 1973 [after MULLOY 1958]
2 CHOQUETTE & HOLSTINE 1980
3 BROWMAN & MUNSELL 1969
4 LEONHARDY & RICE 1970
5 REEVES 1972

□ denotes chronological time periods or phases

[ ] denotes characteristic complexes of a time period

The early investigators working in the northern Rockies noted that the prehistoric cultures of the region had features unlike any from either of the adjacent major cultural areas, although most researchers did little more than point this difference out (Shiner 1950; Malouf 1956; Miller 1959). Although some cultural traits of the area were directly traceable to adjacent regions, Western Montana as a whole had a unique configuration different from those to the east, west or south (Choquette and Holstine 1980). A few investigators suggested that the region be treated as a cultural subprovince or cultural region (Malouf 1956; Miller 1959).

The initial prehistoric chronology applicable to the Kootenai River Valley was formulated in 1956 by Carling Malouf, based upon his idea that western Montana was a unique cultural "region." Malouf divided the region's prehistory into three broad periods beginning with the "Forager Period," followed by the "Late Hunter Period" (with two divisions) and the "Historic Period." Malouf believed the region was first occupied approximately 6000 years ago. Prior to this time, he hypothesized, the glaciated Rocky Mountains presented a barrier to human travel and therefore remained unoccupied until Holocene climatic conditions were fully established. His hypothesis is based solely on the lack of any "early man" material from this area of Montana.

The "Forager Period" groups were broad-spectrum hunter-gatherers similar to other cultures outside western Montana, such as in the Great Basin. Malouf's "Late Hunter" period begins by 1000 B.C. and is denoted by an increased reliance on bison and large game. The latter part of this period is marked by a reduction in projectile point size and a wider array of cultural material. Plains traits during the "Late Hunter" period (i.e. grooved mauls) are apparent in the archaeological record which, according to Malouf, reflects the westward expansion of Plains groups. The Late Hunter period extends to the Protohistoric Period beginning about 1750 A.D.

Malouf's (1956) chronology, while based upon a minimal amount of data and a good deal of speculation, is important in that it recognizes the unique character of western Montana prehistory, and sets forth the rudiments of a local areal chronology. However, Malouf's chronology has never been widely accepted, and his idea that western Montana should be treated as a unique cultural subarea has never been accorded the serious testing it deserves.

Soon after the issuance of Malouf's publications, detailed cultural-historical sequences were developed for the plains and plateau adjacent to western Montana (e.g. Mulloy 1958, Leonhardy and Rice 1970). These data fit western Montana and have been more or less directly applied there (e.g. Taylor 1973). These chronologies are known to be applicable for some prehistoric periods because cultural influences, particularly from the plains, can be directly observed in the archaeological records (i.e. the "Avonlea" complex of the Northwestern Plains is readily apparent in the Late Prehistoric Period archaeological record through much of western Montana). However, within the Kootenai River Valley, the archaeological remains from other periods bear little or no resemblance to the cultural complexes described in the popular chronologies (Roll 1980).

Borrowing cultural-historical frameworks from other areas has proven to be of limited explanatory value in terms of elucidating the local prehistoric adaptive strategies and developments in most of western Montana. Nevertheless, the popular tripartite cultural-historical framework used on the Northwestern Plains (e.g. "prehistoric, protohistoric, historic" and perhaps further subdivided into "Early, Middle and Late Prehistoric Periods") has been applied to the Kootenai River archaeological data (Taylor 1973, Choquette 1973), for lack of a better areal-specific framework. These divisions are based largely on general stylistic developments of projectile points in areas adjacent to the Kootenai River Valley.

Recently, this situation has changed. Based on extensive investigations along Lake Koocanusa in Canada, in the LAURD project, and in the Libby-to-Rathdrum transmission line study, Choquette and Holstine (1980) proposed a cultural-historical framework specifically applicable to the Kootenai River Valley. Although it is likely the framework will be substantially modified when the LAURD project investigations are completed, it is the best offered to date for Northwestern Montana. This framework forms the basis of this discussion. However, Taylor's 1973 classification into prehistoric, protohistoric and historic periods also has been retained in this discussion in order to keep the chronological sequence of developments clear to the reader.

Early Prehistoric Period 9000(?) - 5000 B.C.

It currently is unclear when the Kootenai River Valley became suitable for colonization by plants and animals, including man, following the close of the most recent glaciation. Choquette and Holstine (1980) suggest the Kootenai River Valley may have been hospitable by approximately 12,000 B.P. based on palyonological evidence from Hager Pond in Idaho. The pollen data from Hager Pond are important in that they may show quite closely the post-Pleistocene vegetational (and therefore climatic) history of the Kootenai River Valley. The earliest pollen zones, dating from 10,500 to 8300 B.P., are interpreted to represent cooler, moister climatic conditions than at present. These conditions generally are characteristic of the early Holocene conditions throughout much of the American West. On the basis of present evidence, this early period is coeval with the initial human habitation of the river valley. The presence of these early "Paleo-Indian" hunting bands has been detected primarily by the discovery of a few lanceolate spear points by local collectors (Stephens, 1976). The spear points fall within a wide range of named types including, "Alberta," "Scottsbluff," "Windust" and "Cascade." The stylistic attributes of these points and the material from which they are made indicate

cultural affinities with both the Columbia Plateau and the Northern Plains. Whether these point types represent related ethnic groups or bands, or broader based regional point styles used coevally by a wide number of ethnic groups is not known. To the author's knowledge, no discrete Paleo-Indian assemblages have been excavated within the Kootenai River Valley. Choquette and Holstine (1980) report finding a Cascade-like lanceolate point fragment below what they believe to be Mount Mazama ash in the area of the proposed Libby reregulating reservoir.

A possible Paleo-Indian projectile point was recovered by a local artifact collector from under four feet of cultural deposit at site 24LN1012, on the north bank of the Kootenai River adjacent to the falls gorge (Carlson and Loscheider 1975). The point is stemmed and has a broad blade resembling the "Alberta" point common to the Northern Plains. Unfortunately, this point was haphazardly removed from site 24LN1012 in a manner that leaves the significance of this find in question. Another possible Paleo-Indian point, resembling the "Cascade" type, was recovered by a local collector near the Yaak River Campground (Carlson 1979) suggesting that this area has the potential to yield early-man materials.

Nonetheless, traces of these Paleo-Indian groups throughout the Kootenai River Valley currently are ephemeral. The culture-history of this period is so little known that Choquette and Holstine (1980) left this period rather open-ended and have been unable to ascribe any cultural complexes. They theorize that these points were left by small groups of highly nomadic hunters who entered the valley from the south and east and who were exploiting the freshly established riverine environment along the Kootenai River. It appears that the Kootenai region was not the main focus of their territory, as evidenced by the scanty traces of their activities and campsites. However, the higher and older river terraces above the Kootenai have not been given the close scrutiny they

deserve and these may some day yield more solid evidence concerning this early period.

Middle Prehistoric Period 5000 B.C. to A.D. 500

This period is better known in the Kootenai valley and investigators have provisionally ascribed the related archaeological materials to the "Bristow Complex." It is during this time that the developments within the river valley are recognized as unique rather than being seen as part of a broader cultural evolution pattern on either the Great Plains or the Columbia Plateau. The Bristow Complex shares at least broad cultural affinities with other mountain-adapted prehistoric peoples (e.g. the "Bitteroot or Mummy Cave Complex") living on the eastern and southern slopes of the Northern Rocky Mountains (Swanson 1972, Reeves 1972). The uniqueness of this mountain-oriented existence, and its apparent early beginning, (as early as 5000 B.C.) has only recently come into archaeological acceptance (Frison 1978).

The Bristow Complex is dated by typology to the period from about 5000 B.C to 3000 B.C. (Choquette and Holstine 1980). Projectile point types include large side and corner-notched dart forms typical of much of the Northern Rocky Mountains during this same period. Other artifacts include a variety of chipped stone tools, cobble hammerstones and edge-abraded cobbles.

The Bristow Complex in Lake Koocanusa is located on a high river terrace and on alluvial fans. Investigators infer that these groups of people were strongly oriented toward exploiting "upland" areas above the river, where vegetation and game forage was enhanced by a warm, dry climatic cycle then in effect.

Until the upland areas within the Kootenai River Valley are more thoroughly investigated, the Bristow Complex will remain ill-defined. DNRC's Kootenai River hydroelectric project's archaeological investigation is focused directly on the river banks and terraces where evidence of the Bristow Complex is not

likely to be found. Jermann and Aaberg's (1976) Lake Koocanusa study and their "upland" data are all that will be available for interpretation of this period in DNRC's draft EIS.

The development of the succeeding Rainbow Complex is coeval with the onset of a cooler, moister climatic cycle about 5000 years ago. A reduction in the extensive grasslands and game herds in the Purcell and Bitteroot Mountains is thought to have initiated a shift from mountain-oriented to a riverine oriented subsistence in the Kootenai River Valley. In essence, this marks the beginning of settlement patterns characteristic of the ethnographically-described Kutenai Indians. This valley bottom resource orientation is evidenced by the inhabitation of alluvial terraces along the Kootenai River. Riverine subsistence strategies included deer hunting, fruit and vegetable gathering, and fishing (as evidenced by bilaterally notched pebble "sinkers" or net weights). Smaller stemmed and corner-notched points came into style. and a new type of lithic material (i.e. Kootenay argillite) is thought to indicate trade or contact with groups living north of the Kootenai River Valley, who perhaps used the canoe as transportation. Litrle is known about the cultural relationships with aboriginal groups to the south of the study area around Flathead Lake. Artifact assemblages acquired in the Flathead Lake area by private collectors, show some relationship to the Kootenai area (i.e. in projectile point forms, notched pebble sinkers) but the differences in stone materials used in making these artifacts is striking (Stephens 1978). The cultural relationships between these areas merit further study.

According to Choquette and Holstine, a broader regional perspective is required to understand the cultural events that transpired during the latter part of this period in the Kootenai River Valley. From around 3000 to 2000 B.P., an intensive aboriginal pattern developed at the confluence of the Kootenai and Columbia Rivers in Canada. Choquette suggests that the large pit

house villages found by Turnbull in the Arrow Lake region were focused on intensive exploitation of salmon fisheries, made possible by a moister climate condition and increased water discharge in the upper Columbia drainage. This intensity of occupational focus suddenly diminished at around 2000 B.P. for reasons that remain unclear. Choquette and Holstine (1980) suggest that as a consequence there was a migration of Salishan people from this heavily populated area south into the study area. This period in the Kootenai valley is marked by a noticeable decline in use of locally available stone in favor of stone whose sources lie north of the study area which may be evidence of this southward movement. A decrease in the size of projectile points is thought to signify the introduction of the bow and arrow from the north and east. The occurrence of stone imported from the east into the study area reflects a change toward a large game hunting subsistence strategy characteristic of the Great Plains.

Late Prehistoric Period A.D. 500 to A.D. 1750

The succeeding period is broadly equated with the arrival of the ethnographic Kutenai in the Kootenai River Valley. The Akiyinek complex, dating from 1000 to 550 B.P., shows strong cultural relationship to the Northern Plains Avonlea point type. Red and gold dendritic cherts, apparently derived from quarries south of the study area, were used to manufacture these arrow points and other stone tools. This seems to indicate seasonal movement of the people into the plains and mountains to hunt bison and procure stone for tools. The investigators believe this complex represents the ethnographically known Libby-Jennings Kutenai Indian band.

The interpretation of the occurrence of this red and yellow chert is crucial to the latter part of Choquette and Holstine's chronology and cultural-historical framework, but outcroppings of Madison Limestone Chert are common throughout most of interior western Montana, and on the east front of the

Northern Rockies (Keyser 1980),which indicates Choquette and Holstine's data should be used cautiously.

The Akahonek complex, which extends into the Protohistoric Period, is equated with the Tobacco Plains Kutenai band. Peoples of this complex predominately used side-notched points of "top-of-the-world" chert from the Canadian Rockies (Choquette and Holstine 1980). The investigators equate this change in point styles with the movement of the Libby-Jennings Kutenai band to the Flathead Lake area, and their replacement in the Kootenai Valley by the Tobacco Plains band which preferred side-notched points. Chronologically this complex extends into the early protohistoric period, at which time the ethnographically known Kutenai were occupying the Kootenai River Valley, and the Flathead Lake area. Widespread trade networks characterize the Kootenai river during these late prehistoric and protohistoric periods. These trade networks extended from the lower Columbia at least to the Northern Plains and perhaps farther into the Missouri River trench. A wide array of commodities moved along these trade networks and included such important items as salmon, bison meat and bison products, shell ornaments from the coast, and hide and leather equipment from the plains (Griswold 1954). These periods were further characterized by widespread movements of people both on a seasonal basis and as actual nonseasonal population expansions (i.e. the Shoshone and Blackfeet). The tendency of Choquette and Holstine's chronology to play down these movements obscured the complexity of the archaeological record characteristic of these late periods.

It is not known with certainty when the Kutenai Indian tribe, as such, moved into the Kootenai River Valley. There is some evidence to suggest that the origin of the Kutenai Indians lies within the Tunaxa Tradition of the Northwestern Plains (Reeves 1972). This tradition belongs to the late Prehistoric Period and incorporates several phases, the most recent being the

previously described "Avonlea" phase (A.D. 200-1000). The Avonlea peoples were plains oriented groups who depended on communal bison procurement for their livelihood. Whether the introduction of the Avonlea point styles into the Kootenai River Valley can be equated with the arrival of the Kutenai remains unclear. Certainly, the ethnographically known Upper Kutenai maintained strong ties to the plains region. It appears that the Kutenai people (at least as a distinct linguistic entity) may have migrated down the interior Columbia drainage with other Salishan groups somewhere around 2000 B.P., if Choquette and Holstein's posited southward expansion from the Kootenai-Columbia confluence is correct. Some of the Kutenai groups filtered onto the northwestern plains by the earlier Pelican Lake(ca 1000 B.C. to A.D. 200) or Avonlea times and extensively exploited the foothill plains ecotone. By the Late Prehistoric Period, the rapid expansion of the Blackfeet and Shoshone may have pushed the Kutenai into the river valleys of western Montana. Nevertheless, the upper Kutenai continued to make seasonal treks east to the buffalo grounds of northern Montana (including an annual winter trek on foot over Graves Creek Pass across the Continental Divide) and kept trade and friction with the Blackfeet alive (Turney-High 1941).

Clearly, there is much yet to be learned about the cultural history of the Kootenai River valley. When did the upper and lower bands separate and why? What happened to the indigenous mountain-adapted groups living in the Kootenai River Valley before the Kutenai arrived? Before such questions can be answered, chronologies such as Choquette and Holstine's need to be further refined and fed large doses of archaeological data. Much of the research information needed can only be obtained from archaeological sites within the area of the Kootenai River Dam project and the alternative projects. Located on lower river terraces and the valley floodplain, most of the sites described in this report probably belong to the latter half of Kootenai Valley prehistory and reflect the riverine pattern that developed around 5000 B.P. The complexity of the archaeological

record greatly increases after this time because local prehistoric groups were evolving in socio-technological complexity and presumably growing in population. The archaeological record suggests that an increasingly broad range of cultural groups was moving through, making contacts with Kootenai Valley residents or establishing residence there. The archaeological sites along the Kootenai offer great potential for resolving many of the cultural questions related to the Late Prehistory of the Kootenai and must be soundly managed for the greatest public benefit.

Historical Overview

The history of Europeans in the Kootenai River Valley follows the same general course of settlement as the rest of the American West. Successive waves of newcomers arrived, first in search of furs, then minerals, and finally for land on which to cut logs, grow crops, and establish settlements.

This overview (Figure 11) briefly outlines some of these broad trends in Kootenai River Valley history. Many of the details will be presented in DNRC's draft EIS.

The popularity of the beaver fur top hat in Europe and the eastern United States stimulated the first Euroamerican interest in the Pacific Northwest and the northern Rocky Mountains. Fierce competition from the Hudson Bay Company prompted the rival Northwest Company to send explorers into the Columbia River drainage to make friendly contact with the various Indian tribes of the region and expand their fur trade. Officials of the Northwest Company hoped that these efforts would result in the British government granting them a charter of monopoly over the Pacific slope fur trade which would effectively exclude the Hudson Bay Company from this vast area (Johnson 1969). The Northwest Company sent one of the greatest explorers of the Pacific Northwest, David Thompson, into the Kootenai region of the Columbia River drainage, which up until then had

DATE	HISTORICAL TRENDS	SPECIFIC EVENTS
1810	FUR TRADE	le blanc & la gasse david thompson north west company hudson bay company fort kootenay
1820		
1830		
1840	MISSIONARIES	father pierre-jean desmet
1850	MILITARY EXPLORATIONS & SURVEYS	mullan palliser expedition
1860	GOLD RUSH	wild horse strike libby creek hostilities with kutenai indians
1870		
1880	PLACER MINING	libby troy
1890	RAILROADS STEAMBOATS	northern pacific jennings
1900	LUMBERING	dawson brothers — j. neil — st. regis
1910		
1920	HOMESTEADING & AGRICULTURE	lumbering [mining agriculture government local business]
1930	FOREST SERVICE	
1940		
1950	TOURISIM	
1960		
1970	HYDROELECTRIC DAM CONSTRUCTION	libby dam laurd project
1980	COPPER MINING	asarco

Figure 11:

Historical events in the Kootenai River Valley.

been known solely by the Indian tribes who lived there. Actually, it was two of Thompson's men, LeBlanc and LaGasse, who may have been the first white men to enter Kootenai River country in 1801. Unfortunately, there is no record of the ensuing events but it is certain that the two men were sent to establish trading contacts with the Indians. They may have traveled as far south as the Tobacco Plains where the Kootenai River enters Montana from Canada (Schaeffer 1966).

David Thompson personally explored the Kootenai region in 1808 and left accounts of his travels. Departing in the spring of 1808 from Kootenae House near the headwaters of the Columbia River, Thompson's party came down the Kootenai to what is now Montana early in May. After camping near the Fisher River below the site of Libby Dam, his party portaged around the Kootenai Falls and continued downriver to the site of Bonner's Ferry, Idaho, where they camped with Kutenai and Lake Indians (White 1950). There is little physical evidence of Thompson's passage through the area. Fortunately, Thompson vividly described the Indian portage trail around the Kootenai Falls and portions of this trail are still preserved on the steep slopes above the north shore of Kootenai Falls. The trail has been designated site 24LN112 and is easily visible from the Lion's Club campround on the south shore. Thompson described the trail and portage as follows:

> At the lower Dalles (Kootenai Falls) we had to carry everything on the right side, up a steep bank of rock, among the debris of high rocks, apparently rude basalt, the slope of the River Bank was at a high angle, and our rude path among loose fragments of rock was about three hundred feet above the River, the least slip would have been sure destruction, having carried about one mile, we came to a brook ((Koot Creek)) where we put up for the night. Each trip over this one mile of debris took an hour and a quarter, and cut our shoes to pieces (Tyrrell 1916).

On the basis of archaeological evidence, it appears Indian groups used the portage trail for at least several millenia (Carlson and Loschieder 1975). Huge campsites at each end of the difficult trail contain both prehistoric and historical evidence indicating these sites were staging areas for portage trips around the falls. The north bank archaeology has not been completely explored,

and sites such as Thompson's campsite near Koot Creek have yet to be positively identified. The trail across the rock slide has been maintained over the years by the Forest Service and remains in excellent condition.

The success of Thompson's first trip compelled him to send his clerk, Finian McDonald, down the Kootenai River to establish solid trading contracts with the Kutenai Indians (Tyrell 1916). McDonald established a trading post in 1808, some where in the vicinity of present-day Libby, Montana. He constructed a log house and several leather lodges, but the remains of this first trading post have never been found. Thompson visited the trading post in the summer of 1809 to determine how McDonald fared during his winter trade with the Kutenai Indians. Discovering that the winter trade had been successful, Thompson and McDonald descended the Kootenai River to the site of Bonner's Ferry, Idaho, and then on to Lake Pend Orielle, where they established Kullyspell House, which may have been the first trading post in Idaho (White 1950).

Thompson went on to establish a series of trading posts throughout the Pacific Northwest for the Northwest Company. Of local importance, he established Saleesh House in 1809 on the Clark Fork River near present-day Thompson Falls. The location tentatively has been established through excavations by Carling Malouf of the University of Montana (Malouf 1980). Fort Kootenay was built in 1811 by Finian McDonald and Nicholas Montour on the Kootenai River opposite the mouth of the Fisher River (White 1950). The exact location of the site has never been verified, although investigators believe that site 24LN2 may be where Fort Kootenay once stood (Taylor 1973).

By 1811, John Jacob Astor's Pacific Fur Company presented a direct challenge to the Northwest Company's operations in the Kootenai River Valley. These American traders built trading posts within yards of the Northwest posts. One of these posts, again named Fort Kootenay, was established next to the Northwest Company's fort opposite the mouth of the Fisher River (Elliott 1915). This

increased the already bitter rivalry between the companies but it appears that neither company suffered appreciably as a result, inasmuch as there were plenty of furs yet to be taken in the Kootenai country. At any rate, the rivalry was short-lived. The war of 1812 broke out and the Astorians, fearing the British might attack their isolated headquarters post at Fort Astoria, Oregon, sold out to the Northwest Company.

The Northwest Company was, in turn, absorbed by the Hudson Bay Company in 1821. The merger was initiated by the British government to end the prolonged and economically detrimental rivalry between the two powerful fur companies. The Hudson Bay Company continued the operation of Fort Kootenay. The post was moved in 1846 to the Tobacco Plains country where its location was changed several times (Taylor 1973). The fort was finally established in Canada where it became Fort Steele.

The decline of the fur trade in the late 1850s forced the Hudson Bay Company to abandon Fort Kootenay and their trapping interests in northwestern Montana. The impact of the fur trade industry on the aboriginal peoples of the Northwest and the Kootenai River Valley is difficult to evaluate. The monopolistic conrol of the Hudson Bay Company after its merger with the Northwest Company prevented the establishment of alliances between fur companies and Indian tribes. Such alliances proved disastrous in other parts of the west (Davis 1975).

By the 1840s, other Euroamericans had vested interests in the Pacific Northwest. The Jesuit missionary, Father Pierre-Jean DeSmet, traveled through the Kootenai River valley enroute to Fort Colville to obtain provisions for the Saint Mary's Mission in the Bitteroot Valley. Father DeSmet traveled around the Kootenai Falls, about which he remarked:

> At a place called the Portage, the river crosses a defile of mountains, or rather precipitous and frightful rocks; and the traveler is compelled... to risk life at every step and brave obstacles that

at first seem insuperable(Thwaites 1906).

Father DeSmet was a record traveler of his time, much like David Thompson several decades earlier. Through his efforts, several missions were established throughout the Pacific Northwest. The Kutenai Indians first met Father DeSmet in 1842 when he visited some 30 of their lodges west of Flathead Lake (Choquette and Holstine 1980). In 1843, DeSmet visited the Kutenais within the Kootenai River valley for the first time (Johnson 1969). The missionary was delighted with the landscape he saw and was impressed with the spirit and propriety of the Kutenai Indians. Most of the subsequent missionary efforts took place outside the Kootenai River Valley, either in the Flathead Valley to the south or in the Columbia River Valley to the west (Johnson 1969). No missions were established along the Montana-Idaho portion of the Kootenai, and the effects of the missionaries on Kootenai Valley history is minimal, especially compared to their influences on the course of white settlement in the Flathead and Bitteroot valleys.

By the 1850s, the transitory interest of previous travelers and explorers had changed. Both the United States and British governments were intent on finding suitable railroad and wagon road routes that would connect the Columbia and Missouri River basins.

In search of a suitable route over the Continental Divide, Lt. John Mullan of the U.S. Army in 1854 explored the Tobacco River to its confluence with the Kootenai River, and the Flathead River farther south (Choquette and Holstine 1980). The Palliser Expedition of 1859, in search of a transportation route across western Canada, traveled down the Kootenai River to Bonner's Ferry, Idaho (Spritzer 1978). The party traveled the north shore of the river and portaged around the falls.

In 1855, Washington Territorial Governor Isaac Stevens made treaties with the Kutenai and Flathead at Council Grove near present day Missoula. The treaty

created the Flathead Reservation and resulted in the rapid fragmentation of the Kutenai tribe. Some bands ignored the treaty and moved to Canada. The lower Kutenai, living near Bonner's Ferry, refused to move to the reservation and remained as nontreaty Indians under the leadership of Chief Abraham. In 1895, the federal government finally granted them legal right to a small Indian Reservation near Bonner's Ferry. The treaty of 1855 also was distasteful to Chief Victor's band of Flatheads, who refused to give up their homes in the Bitteroot (Johnson 1969).

The gold strikes of the 1860s brought significant changes throughout most of the American West. In 1863, gold was discovered on Wild Horse Creek in southwestern British Columbia (Johnson 1969). Innumerable white prospectors poured into British Columbia by way of the Tobacco Plains and Bonner's Ferry, Idaho, straight through the heart of Kootenai country. Although the gold at Wild Horse Creek played out rather quickly, the impacts on the area were lasting. Settlements arose along the famous "Wild Horse Trail" which ran north from Spokane to the Wild Horse diggings in Canada, and towns such as Walla Walla, which was an important supply depot, owed much of their early livelihood to these gold strikes.

When the news of the gold strikes in western Montana reached the played-out fields on Wild Horse Creek, the gold exodus turned southward. Prospecting began along the Kootenai River as early as 1859, and by 1866, a significant number of miners was working the gravels along Libby Creek, Lake Creek, and other small streams (Johnson 1969). In 1866, a small group of miners was attacked by a party of Kutenai on Libby Creek, just a few miles north of present-day Libby. Two whites were killed. A posse caught and executed the five Kutenai involved in the fray. This is the only reported incident of hostilities between the Kutenai and whites.

The lure of the gold strikes elsewhere apparently resulted in few whites settling the Kootenai area for some time. Although a small amount of prospecting was still undertaken, the region appears to have been left to the Kutenai through most of the 1870s (Johnson 1969).

Prospectors returned to the Kootenai with new mining technology in the early 1880s and discovered rich placer deposits on Libby Creek (Libby Historical Society 1975). A settlement grew up in the vicinity of the diggings (20 miles upriver from present-day Libby). Thereafter, the white population of the Kootenai Valley grew steadily but slowly, based largely on the renewed interest in mining.

As mining became widespread throughout the Kootenai River Valley, particularly in the Libby-Troy-Fisher River vicinities, Chinese were imported to work the mines and to provide various services to the mining camps (Johnson 1969). There are several recorded instances of brutality to Chinese, as was common in frontier mining communities, and stories of "Chinese graves" abound in local history (Hileman 1978).

The productivity of the mines drew interest from corporations in Butte and Spokane and by the 1880s, many of the small local mines were purchased by larger mining corporations (Johnson 1969). Quartz mining developed during this period and such important mines as Shaunessey Hill, Snowshoe, and the Snowstorm mine near Troy were important in the growth of this community (Libby Pioneer Society 1975).

The development of large-scale mining awaited the arrival of adequate means of transportation. In 1891, the westward extension of the Great Northern Railroad line had been completed to the mouth of the Fisher River where the town of Jennings developed to serve transportation related needs. The Jennings site (24LN1025) was investigated during the LAURD project investigations and is

located on more ancient Indian campsites. The railroad enabled Jennings residents to establish trade with the settlers farther upriver at the Tobacco Plains and with the mining communities around Fort Steele in Canada (Johnson 1969) and facilitated the development of steamboat commerce on the Kootenai River. Ore from the mines in British Columbia was transported via steamboat to Jennings where it was placed on railroad cars bound for the smelters in Butte and Anaconda.

Jennings served as the headquarters for the steamboat trade on the Kootenai River until the Great Northern Railroad feeder lines reached the Canadian mines (Libby Pioneer Society 1975). This unique steamboat era disappeared as quickly as it had begun and such colorfully named boats as the "Annerly," "Fool Hen" and others were dismantled and shipped on the railroads to other waters. The town of Jennings was quickly deserted and only a few foundations are visible today.

The railroad brought homesteaders to the Kootenai River Valley and numerous small towns, such as Rexford, sprang up to serve the new settlers. Older established mining towns, such as Libby and Troy, moved next to the railroad tracks, and the "old towns," such as Libby, located at the mouth of Libby Creek, were abandoned (Libby Pioneer Society 1975). The railroad construction brought in workers of many nationalities including another influx of Chinese laborers. Remains of these so-called "Chinese railworkers" camps can be found along the tracks but it is likely that many of these camps also were inhabited by workers of other nationalities. The mystique of the Chinese workers is apparent in the historical accounts of the period, and in the naming of China Mountain, China Creek, and China Rapids in the Kootenai River.

Homesteading and farming were difficult ventures in much of the Kootenai Valley but few options other than mining were available for those who could not make a success out of the soil, until the coming of the railroad made logging a profitable venture. The Dawson brothers from the Midwest established the first

sawmill in the region in 1906, which later became the largest sawmill in Montana (Johnson 1969). Lumbering soon the largest industry in the Kootenai Valley. The town of Libby prospered with the mill, and basically became a "company" town.

The new found lumber industry had impact on the vast timber resources of the region. The 1897 creation of National Forest Reserves led to the establishment of the Kootenai and Kaniksu National Forests. The administration of these forests created federal jobs which have provided an additional source of employment to such small towns as Libby and Troy.

By the 1940s, the combination of mining, logging, federal government and local businesses provided the economic basis of the Kootenai area. Construction of Libby dam in the 1960s-1970s brought increased population and revenue into the Libby area. By the late 1970s, initial work began on the proposed Libby Additional Units and Reregulating Dam, which are not yet complete. Recently, ASARCO opened a copper mine in the Bull River Valley near Troy and it is expected to employ up to 300 persons.

In summary, the people and communities within the Kootenai River Valley have continually changed as the various natural resources of the area have been developed. Increased urbanization and industrialization of the river valley has removed much of the distinctive local flavor of the region. Those historic resources which have survived the economic changes in the area are direct links to the past, and should be preserved for future generations.

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Appendix

Description of Jermann and Aaberg's Study of the Upper River Terraces along Lake Koocanusa Shoreline

Jermann and Aaberg spent a month surveying the shoreline of Lake Koocanusa during spring draw-down in 1976. The survey was designed to systematically sample the entire range of environments within Lake Koocanusa from the Canadian border to Libby Dam. A total of 164 potential survey tracts comprising 13,715 acres was identified in the designated area. Tracts one-half mile in north-south dimensions were combined into eight sampling strata. The east-west boundaries of each tract were established between minimum (2290 ft) and maximum (2460) pool elevation. These bounaries were specifically defined in order to determine how the shoreline erosion affected cultural resources. The researchers wanted to determine whether entire sites were being washed away by wave action, and to what extent artifacts were being exposed to the view of artifact collectors along the shoreline. The researchers intended to examine 2,883 acres within 23 tracts, but the rising floodpool made it possible to survey only 836 acres. This 836 acres was restricted to the upper river terraces and slopes and represented a 6.1 percent sample of the entire 13,715 acre area comprising the upper river terrace shoreline of Lake Koocanusa. Based on their data from these higher and older river terraces, Jermann and Aaberg estimated site density for the total reservoir shoreline. The estimates were based on the amount of surface potentially suitable for aboriginal occupation between minimum and maximum floodpool (Jermann and Aaberg 1976). The investigators located a total of 21 sites within the 23 sampled tracts. In order to derive site density numbers for the remainder of the reservoir, they first calculated the number of sites per unit survey area for each of the eight strata. For example, in stratum A, 111 acres were surveyed out of the total area of 3085 acres, yielding 7 sites: site density = 7/111 acres. Based on

these site density figures, Jermann and Aaberg made predictive assessments based on the assumption that the site density in their sample was proportional to that in the total area of the stratum. Thus, 21 sites in a six percent sample should indicate the presence of 350-400 sites in a 100 percent sample. The investigators introduced a "Correction factor" which is not fully explained but tends to slightly increase their estimated site total.